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COLUMBIA: THE FIRST FIVE FLIGHTS
ENTRY HEATING DATA SERIES
VOLUME 5
THE SIDE FUSELAGE AND PAYLOAD BAY DOOR

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January 1984

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Johnson Space Center
Houston, Texas

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Volume 5
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After publication and distribution of the document listed above it was observed that the numerical values of the Normal Shock Reynolds Numbers flagged on the h/h_{ref} vs. α plots were incorrectly labeled. Although the flagged values were correct with respect to time and α the freestream values instead of the normal shock values were printed. The analyst can obtain the correct value for wind tunnel conditions by multiplying the stated values by 0.1121 or by using the values shown in the following table. This error is consistent for Volumes 2 through 6. The author regrets any inconvenience this has caused for the serious researcher.

Correlation Between Free Stream and Normal Shock Reynolds Numbers at Wind Tunnel Conditions

0.0175 Scale $Re_\infty / ft \times 10^6$	107 Ft. Length $Re_\infty \times 10^6$	107 Ft. Length $Re_{NS} \times 10^5$
0.50	0.936	1.050
1.00	1.873	2.099
1.50	2.809	3.149
2.00	3.745	4.198
2.50	4.681	5.248
3.00	5.618	6.297
3.50	6.554	7.347
3.70	6.928	7.767

DISCUSSION:

Over 2,000 development flight instruments (DFI) were installed on Columbia with the majority of the DFI flight data recorded during ascent and entry (ref. 1). Additional real-time instrumentation was used to continuously monitor the thermal subsystems during each flight. Successful completion of the first five flights of the Space Shuttle Orbiter has provided sufficient data from radiometers, thermocouples, and pressure transducers to appraise the aerothermodynamic/TPS performance.

The entry heating presented in this report is restricted to the Side Fuselage and Payload Bay Door $Z = 400$ and $Z = 440$ traces aft of $X/L = 0.2$, see Fig. 1. A tabulation of the orbiter X, Y, Z coordinates for each instrument can be found in Table I. This data is presented in two Appendices:

Appendix A: Correlation Parameters

Appendix B: Flight Data

As an aid to the reader, the page numbers for the specific correlation parameters and flight data for each Appendix can be found in Tables II and III.

The surface heating and temperature data presented in this volume is based on the thermal analysis at each individual location via the JSC NONLIN/INVERSE computer program Ref. 2. Values of angle-of-attack and the derived free stream Mach number were obtained from JSC/MPAD Best Estimated Trajectory (BET) data tapes for each flight. The corresponding data values for Normal Shock Reynolds number (Ref. 3), reference heating rate, reference film coefficient, and total enthalpy were obtained via the MINIVER computer program (Ref. 4). Values of h/h_{ref} were computed using a 0.9 H_T recovery enthalpy. The comparison of wind tunnel data ($0.9H_T$) with flight data for V07T9905A ($X/L=0.545$), V09T9511A ($X/L=0.673$), and V09T9736A ($X/L=0.854$) was obtained by linear interpolation from $X/L=0.2$ and $X/L=0.3$, $X/L=0.5$ and $X/L=0.6$, and $X/L=0.65$ and $X/L=0.7$ locations, respectively. All other wind tunnel data was taken at X/L locations (± 0.01) corresponding to flight measurement locations, except V07T9247A which uses data at $X/L=.95$ without extrapolation.

At the wind tunnel conditions, Mach=8, (Ref. 5) the Normal Shock Reynolds number is .1721 times the Reynolds number based on freestream parameters.

All heating rates were calculated with a view factor of 1. The surface emissivity of all instruments was assumed to be 0.80. A majority of the heating rates compared to flight parameters (α , M_∞ , and Re_{Ns}) are presented on a log scale with imposed limits of $10^{-3} \leq h/h_{ref} \leq 1$ except for V07T9926A, V07T9255, V07T9242A, V09T9736A, V07T9244A, and V07T9247A which had imposed limits of $10^{-4} \leq h/h_{ref} \leq 1$, and V07T9892A which had imposed limits of $10^{-2} \leq h/h_{ref} \leq 1$.

Entry heating data for other vehicle areas is presented in additional volumes. Volume 1: An overview, see Ref. 6, contains the underlying assumptions, detailed trajectory information, and pertinent information for the integration of all subsequent volumes. In order to provide an adequate overview of the entry heating volume 1 will be the last released publication in this series of reports.

REFERENCES:

1. Smith, J. A., STS-3 Structural and Aerodynamic Pressure and Aerothermodynamics and Thermal Protection System Measurement Locations, NASA JSC 17889, January 15, 1982.
2. Williams, S. D. and Curry, D. M., An Analytical and Experimental Study Using a Single Embedded Thermocouple, *J. Spacecraft and Rockets*, Vol. 14, October 1977, pp. 632-637.
3. Ried, R. C., Jr.; Goodrich, W. D.; Strouhal, G.; and Curry, D. M.: The Importance of Boundary Layer Transition to the Space Shuttle Design, Proceedings of the Boundary Layer Transition Workshop held November 3-5, 1971. Aerospace Report No. TOR-0172 (S2816-16) -5, December 20, 1971.
4. Hender, D. R., A Miniature Version of the JA70 Aerodynamic Heating Computer Program, H800 (MINIVER) MDC G0462, McDonnell Douglas Astronautics Company, Huntington Beach, CA, June 1970, Revised January 1972.
5. Knox, E. C., Thin-Skin Thermocouple Heat-Transfer Tests on a 0.0175-Scale 140C Shuttle Orbiter Conducted at Mach 8.0 in the AEDC-VKF Tunnel B, AEDC-DR-75-71, Von Karman Gas Dynamics Facility, ARO, Inc., Arnold Engineering Development Center, Arnold Air Force Station, Tennessee, July 30, 1975.
6. Williams, S. D., Columbia: The First Five Flights Entry Heating Data Series, Volume 1, An Overview.

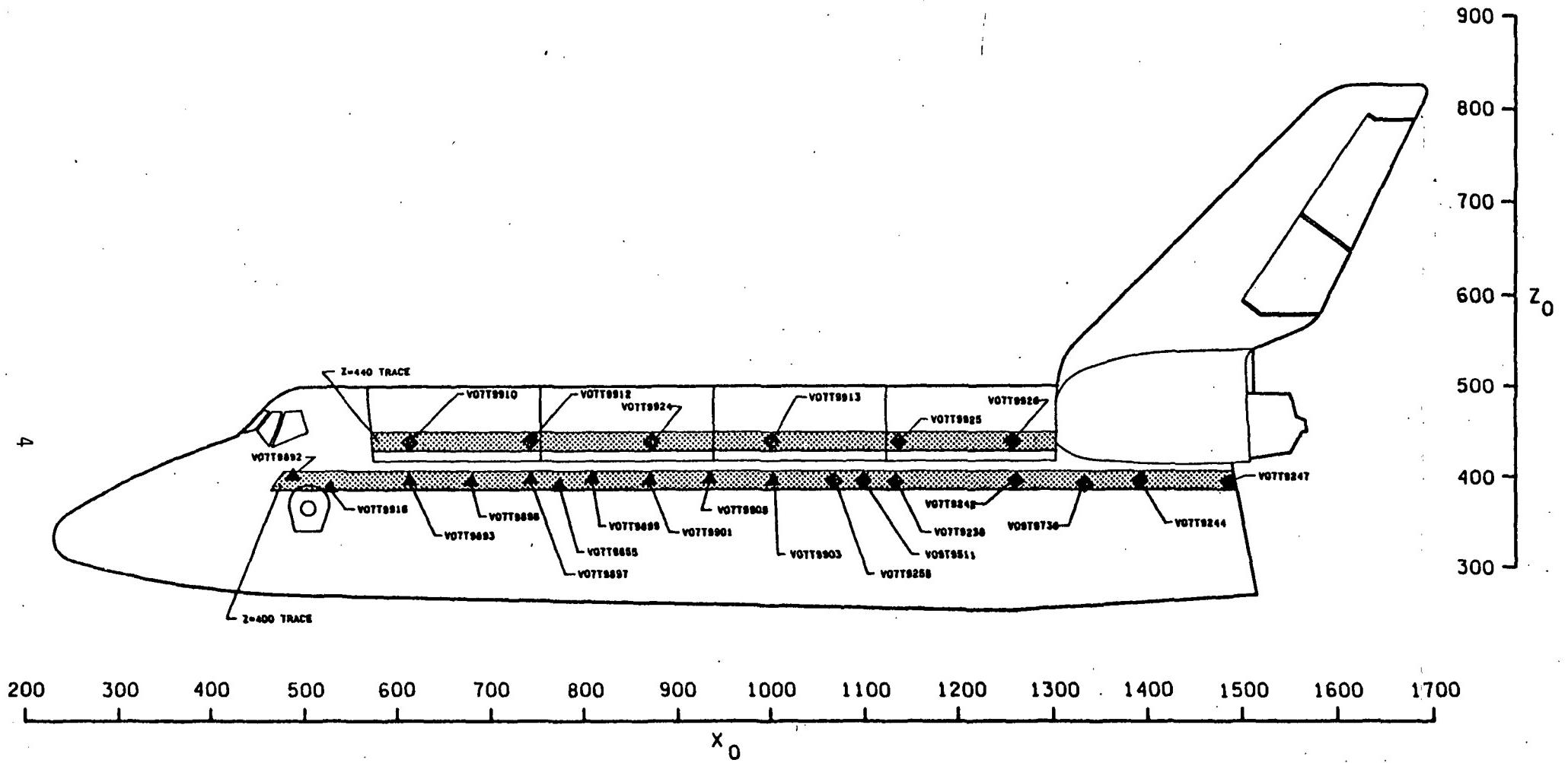


FIG 1.- MEASUREMENTS LOCATIONS ON THE FUSELAGE SIDE
AND PAYLOAD BAY DOOR SIDE SURFACE

TABLE I
SIDE FUSELAGE COORDINATES

Z = 400 Trace - Side Fuselage

<u>Measurement</u>	<u>X/L</u>	<u>X</u>	<u>Y</u>	<u>Z</u>
V07T9892A	.201	493.0	-97.8	404.7
V07T9916A	.232	533.5	-103.1	390.5
V07T9893A	.296	616.0	-105.0	402.4
V07T9896A	.346	679.4	-105.0	401.9
V07T9897A	.396	743.4	-105.0	400.6
V07T9855A	.425	780.6	-105.0	394.5
V07T9899A	.445	807.1	-105.0	397.5
V07T9901A	.495	871.0	-105.0	398.5
V07T9905A	.545	935.3	-105.0	404.0
V07T9903A	.600	1006.0	-105.0	399.0
V07T9255A	.650	1070.0	-105.0	398.0
V09T9511A	.673	1100.0	-105.0	397.0
V07T9238A	.700	1134.0	-105.0	398.0
V07T9242A	.798	1260.0	-105.0	400.0
V09T9736A	.854	1332.0	-107.0	392.0
V07T9244A	.900	1391.5	-111.7	400.0
V07T9247A	.977	1490.0	-119.5	398.5

Z = 440 Trace - Side Payload Bay Door

V07T9910A	.306	627.8	-104.9	439.9
V07T9912A	.400	748.4	-105.0	442.0
V07T9924A	.501	878.3	-105.0	440.5
V07T9913A	.598	1003.8	-105.0	441.4
V07T9925A	.703	1138.4	-105.0	441.4
V07T9926A	.795	1257.0	-105.0	442.0

TABLE II
PAGE NUMBERS FOR APPENDIX A:
CORRELATION PARAMETERS

			STS-FLIGHT				
			<u>STS-1</u>	<u>STS-2</u>	<u>STS-3</u>	<u>STS-4</u>	<u>STS-5</u>
α	vs	t	1	2	3	4	5
M_∞	vs	t	6	7	8	9	10
Re_{NS}	vs	t	11	12	13	14	15
α	vs	M_∞	16	17	18	19	20
α	vs	Re_{NS}	21	22	23	24	25
M_∞	vs	Re_{NS}	26	27	28	49	30
q_{ref}	vs	α	31	32	33	34	35
q_{ref}	vs	M_∞	36	37	38	39	40
q_{ref}	vs	Re_{NS}	41	42	43	44	45
q_{ref}	vs	t	46	47	48	49	50
h_{ref}	vs	α	51	52	53	54	55
h_{ref}	vs	M_∞	56	57	58	59	60
h_{ref}	vs	Re_{NS}	61	62	63	64	65
h_{ref}	vs	t	66	67	68	69	70

TABLE III - PAGE NUMBERS FOR APPENDIX B: FLIGHT DATA

MEASUREMENT	STS-FLIGHT				
	STS-1	STS-2	STS-3	STS-4	STS-5
V07T9892A	- h/h_{ref} vs α	1	2	3	4
	- h/h_{ref} vs M_∞	6	7	8	9
	- h/h_{ref} vs Re_{NS}	11	12	13	14
	- \dot{q}_{conv} vs t	16	17	18	19
	- T_s vs t	21	22	23	24
V07T9916A	- h/h_{ref} vs α	26	27	28	29
	- h/h_{ref} vs M_∞	31	32	33	34
	- h/h_{ref} vs Re_{NS}	36	37	38	39
	- \dot{q}_{conv} vs t	41	42	43	44
	- T_s vs t	46	47	48	49
V07T9893A	- h/h_{ref} vs α	51	52	53	54
	- h/h_{ref} vs M_∞	56	57	58	59
	- h/h_{ref} vs Re_{NS}	61	62	63	64
	- \dot{q}_{conv} vs t	66	67	68	69
	- T_s vs t	71	72	73	74
V07T9896A	- h/h_{ref} vs α	76	77	78	79
	- h/h_{ref} vs M_∞	81	82	83	84
	- h/h_{ref} vs Re_{NS}	86	87	88	89
	- \dot{q}_{conv} vs t	91	92	93	94
	- T_s vs t	96	97	98	99
V07T9897A	- h/h_{ref} vs α	101	102	103	104
	- h/h_{ref} vs M_∞	106	107	108	109
	- h/h_{ref} vs Re_{NS}	111	112	113	114
	- \dot{q}_{conv} vs t	116	117	118	119
	- T_s vs t	121	122	123	124
					125

TABLE III - Continued

MEASUREMENT	STS-FLIGHT				
	STS-1	STS-2	STS-3	STS-4	STS-5
V07T9855A	- h/h_{ref} vs α	126	127	128	129
	- h/h_{ref} vs M_∞	131	132	133	134
	- h/h_{ref} vs Re_{NS}	136	137	138	139
	- \dot{q}_{conv} vs t	141	142	143	144
	- T_s vs t	146	147	148	149
V07T9899A	- h/h_{ref} vs α	151	152	153	154
	- h/h_{ref} vs M_∞	156	157	158	159
	- h/h_{ref} vs Re_{NS}	161	162	163	164
	- \dot{q}_{conv} vs t	166	167	168	169
	- T_s vs t	171	172	173	174
V07T9901A	- h/h_{ref} vs α	176	177	178	179
	- h/h_{ref} vs M_∞	181	182	183	184
	- h/h_{ref} vs Re_{NS}	186	187	188	189
	- \dot{q}_{conv} vs t	191	192	193	194
	- T_s vs t	196	197	198	199
V07T9905A	- h/h_{ref} vs α	201	202	203	204
	- h/h_{ref} vs M_∞	206	207	208	209
	- h/h_{ref} vs Re_{NS}	211	212	213	214
	- \dot{q}_{conv} vs t	216	217	218	219
	- T_s vs t	221	222	223	224
V07T9903A	- h/h_{ref} vs α	226	227	228	229
	- h/h_{ref} vs M_∞	231	232	233	234
	- h/h_{ref} vs Re_{NS}	236	237	238	239
	- \dot{q}_{conv} vs t	241	242	243	244
	- T_s vs t	246	247	248	249

TABLE III - Continued

MEASUREMENT	STS-FLIGHT				
	STS-1	STS-2	STS-3	STS-4	STS-5
V07T9255A	- h/h_{ref} vs α	NA	NA	251	252
	- h/h_{ref} vs M_∞	NA	NA	254	255
	- h/h_{ref} vs Re_{NS}	NA	NA	257	258
	- \dot{q}_{conv} vs t	NA	NA	260	261
	- T_s vs t	NA	NA	263	264
V09T9511A	- h/h_{ref} vs α	266	267	268	269
	- h/h_{ref} vs M_∞	271	272	273	274
	- h/h_{ref} vs Re_{NS}	276	277	278	279
	- \dot{q}_{conv} vs t	281	282	283	284
	- T_s vs t	286	287	288	289
V07T9238A	- h/h_{ref} vs α	NA	NA	291	292
	- h/h_{ref} vs M_∞	NA	NA	294	295
	- h/h_{ref} vs Re_{NS}	NA	NA	297	298
	- \dot{q}_{conv} vs t	NA	NA	300	301
	- T_s vs t	NA	NA	303	304
V07T9242A	- h/h_{ref} vs α	NA	NA	306	307
	- h/h_{ref} vs M_∞	NA	NA	309	310
	- h/h_{ref} vs Re_{NS}	NA	NA	312	313
	- \dot{q}_{conv} vs t	NA	NA	315	316
	- T_s vs t	NA	NA	318	319
V09T9736A	- h/h_{ref} vs α	321	322	323	324
	- h/h_{ref} vs M_∞	326	327	328	329
	- h/h_{ref} vs Re_{NS}	331	332	333	334
	- \dot{q}_{conv} vs t	336	337	338	339
	- T_s vs t	341	342	343	344

TABLE III - Continued

MEASUREMENT	STS-FLIGHT				
	STS-1	STS-2	STS-3	STS-4	STS-5
V07T9244A	- h/h_{ref} vs α	NA	NA	346	347
	- h/h_{ref} vs M_∞	NA	NA	349	350
	- h/h_{ref} vs Re_{NS}	NA	NA	352	353
	- \dot{q}_{conv} vs t	NA	NA	355	356
	- T_s vs t	NA	NA	358	359
V07T9247A	- h/h_{ref} vs α	NA	NA	361	362
	- h/h_{ref} vs M_∞	NA	NA	364	365
	- h/h_{ref} vs Re_{NS}	NA	NA	367	368
	- \dot{q}_{conv} vs t	NA	NA	370	371
	- T_s vs t	NA	NA	373	374
V07T9910A	- h/h_{ref} vs α	376	377	378	379
	- h/h_{ref} vs M_∞	381	382	383	384
	- h/h_{ref} vs Re_{NS}	386	387	388	389
	- \dot{q}_{conv} vs t	391	392	393	394
	- T_s vs t	396	397	398	399
V07T9912A	- h/h_{ref} vs α	401	402	403	404
	- h/h_{ref} vs M_∞	406	407	408	409
	- h/h_{ref} vs Re_{NS}	411	412	413	414
	- \dot{q}_{conv} vs t	416	417	418	419
	- T_s vs t	421	422	423	424
V07T9924A	- h/h_{ref} vs α	426	427	428	429
	- h/h_{ref} vs M_∞	431	432	433	434
	- h/h_{ref} vs Re_{NS}	436	437	438	439
	- \dot{q}_{conv} vs t	441	442	443	444
	- T_s vs t	446	447	448	449

TABLE III - Continued

MEASUREMENT	STS-FLIGHT				
	STS-1	STS-2	STS-3	STS-4	STS-5
V07T9913A	- h/h_{ref} vs α	451	452	NA	453
	- h/h_{ref} vs M_∞	455	456	NA	457
	- h/h_{ref} vs Re_{NS}	459	460	NA	461
	- \dot{q}_{conv} vs t	463	464	NA	465
	- T_s vs t	467	468	NA	469
V07T9925A	- h/h_{ref} vs α	471	472	473	474
	- h/h_{ref} vs M_∞	476	477	478	479
	- h/h_{ref} vs Re_{NS}	481	482	483	484
	- \dot{q}_{conv} vs t	486	487	488	489
	- T_s vs t	491	492	493	494
V07T9926A	- h/h_{ref} vs α	NA	NA	496	497
	- h/h_{ref} vs M_∞	NA	NA	499	500
	- h/h_{ref} vs Re_{NS}	NA	NA	502	503
	- \dot{q}_{conv} vs t	NA	NA	505	506
	- T_s vs t	NA	NA	508	509
					510

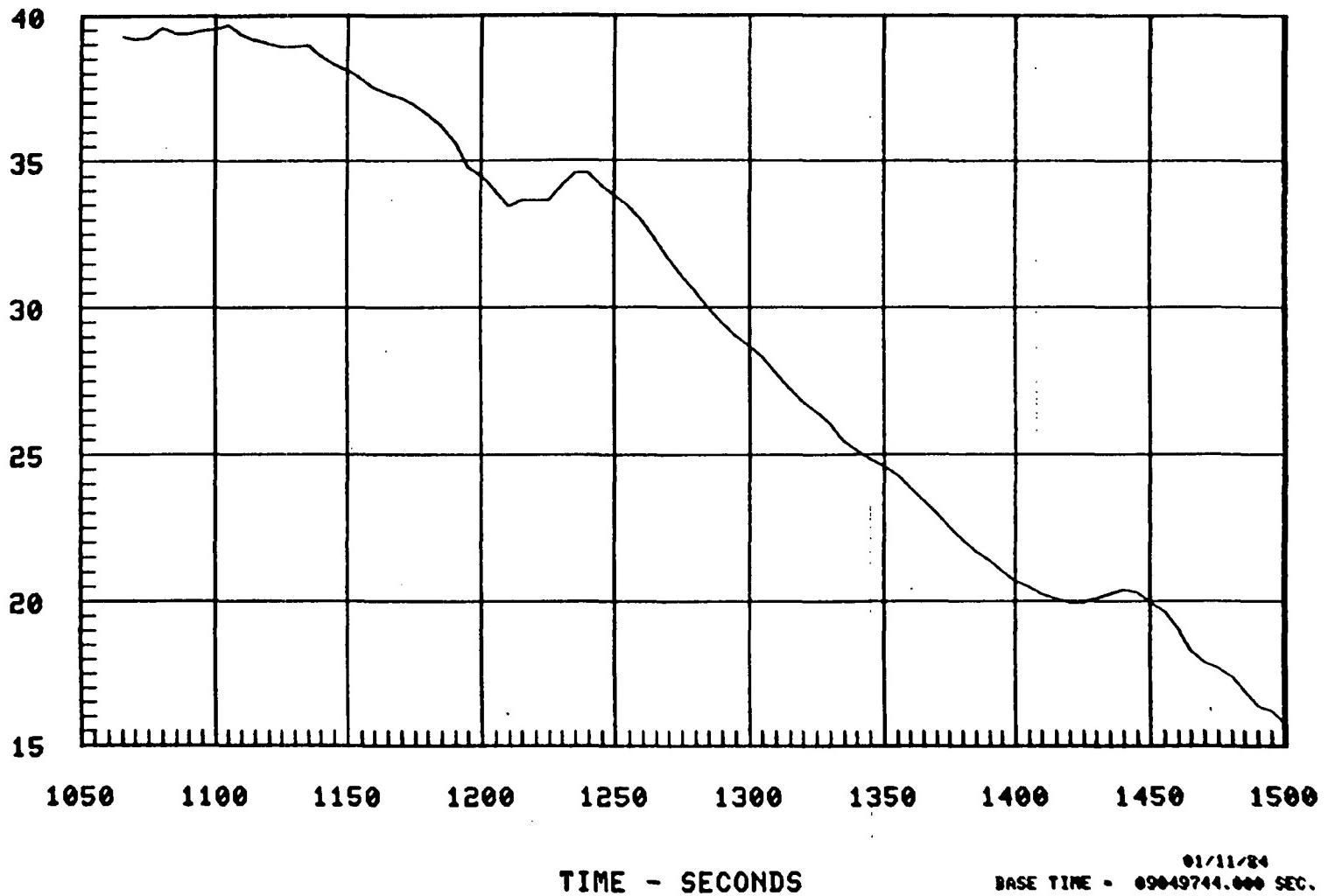
APPENDIX A
CORRELATION PARAMETERS

STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

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A-1
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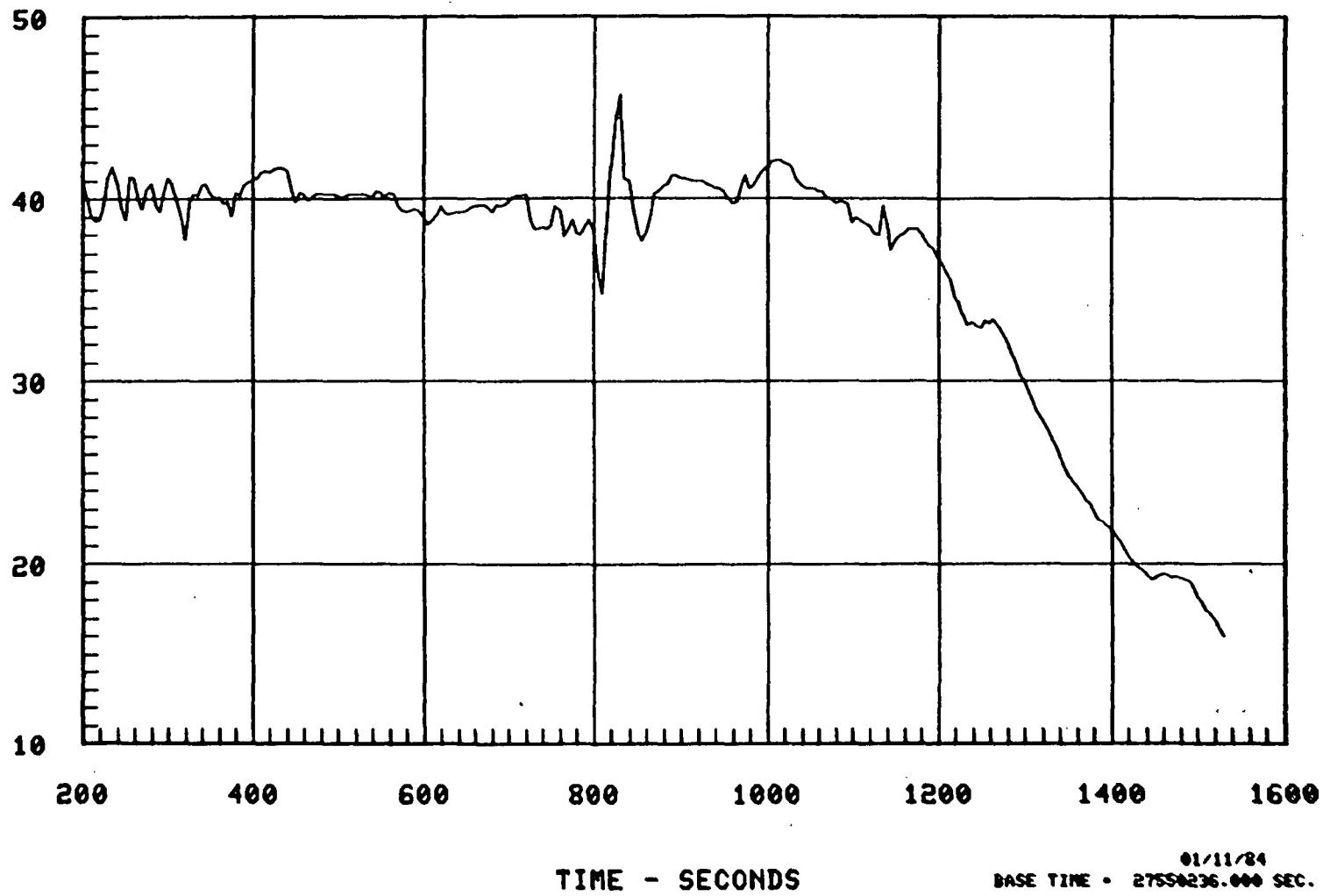
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200-1530 SEC

A-2
ACCELERATION - G



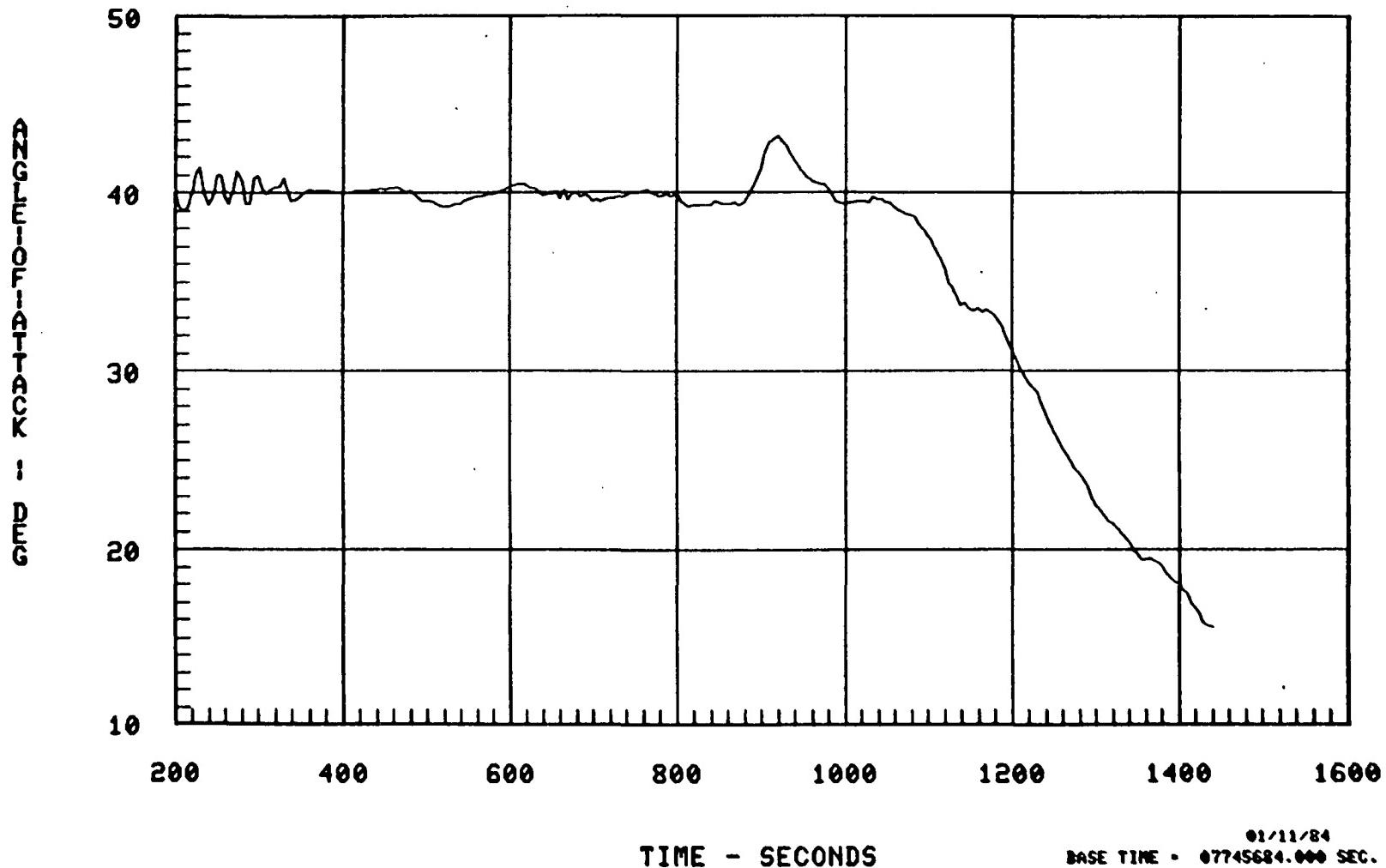
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200-1440 SEC



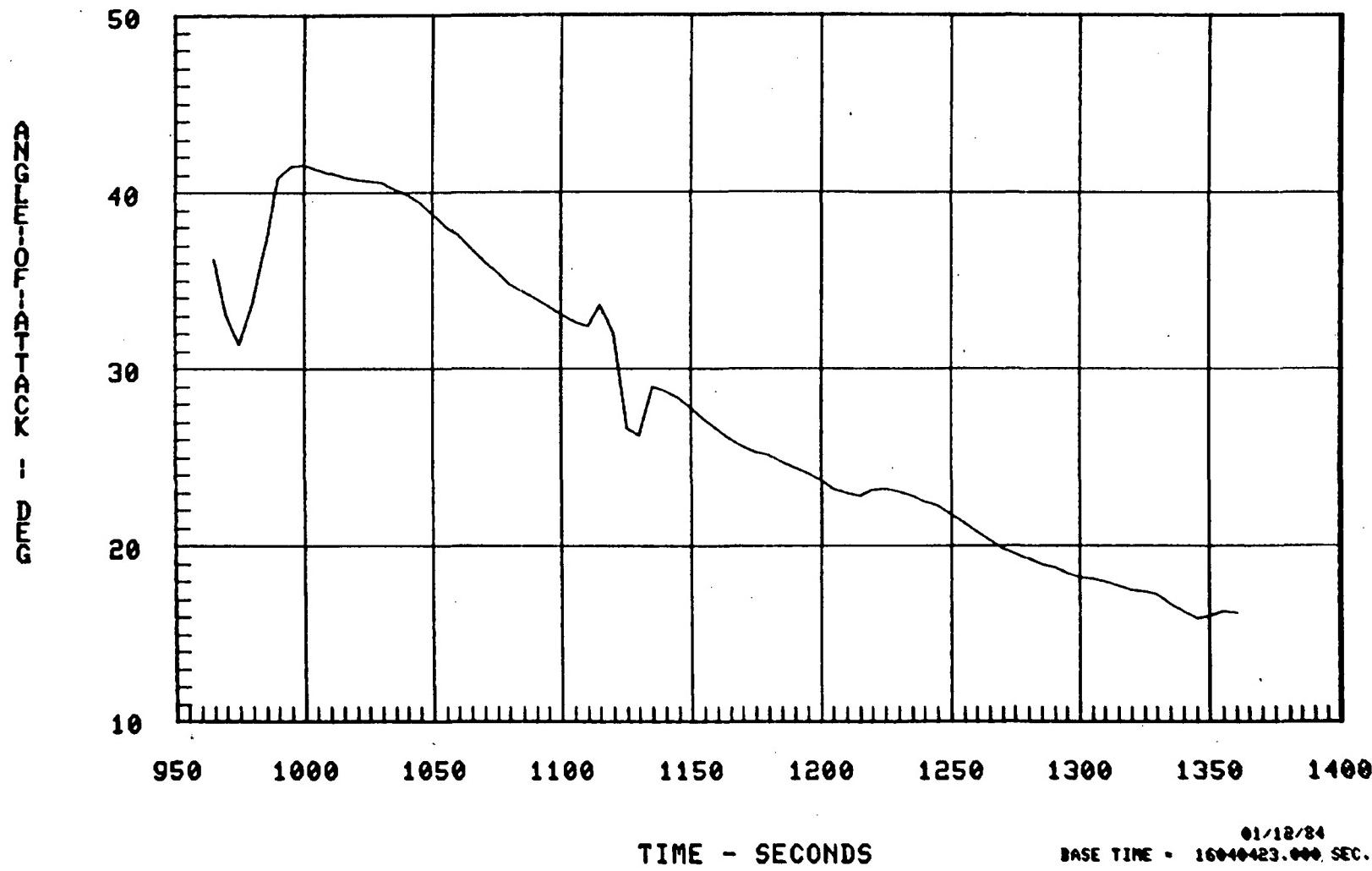
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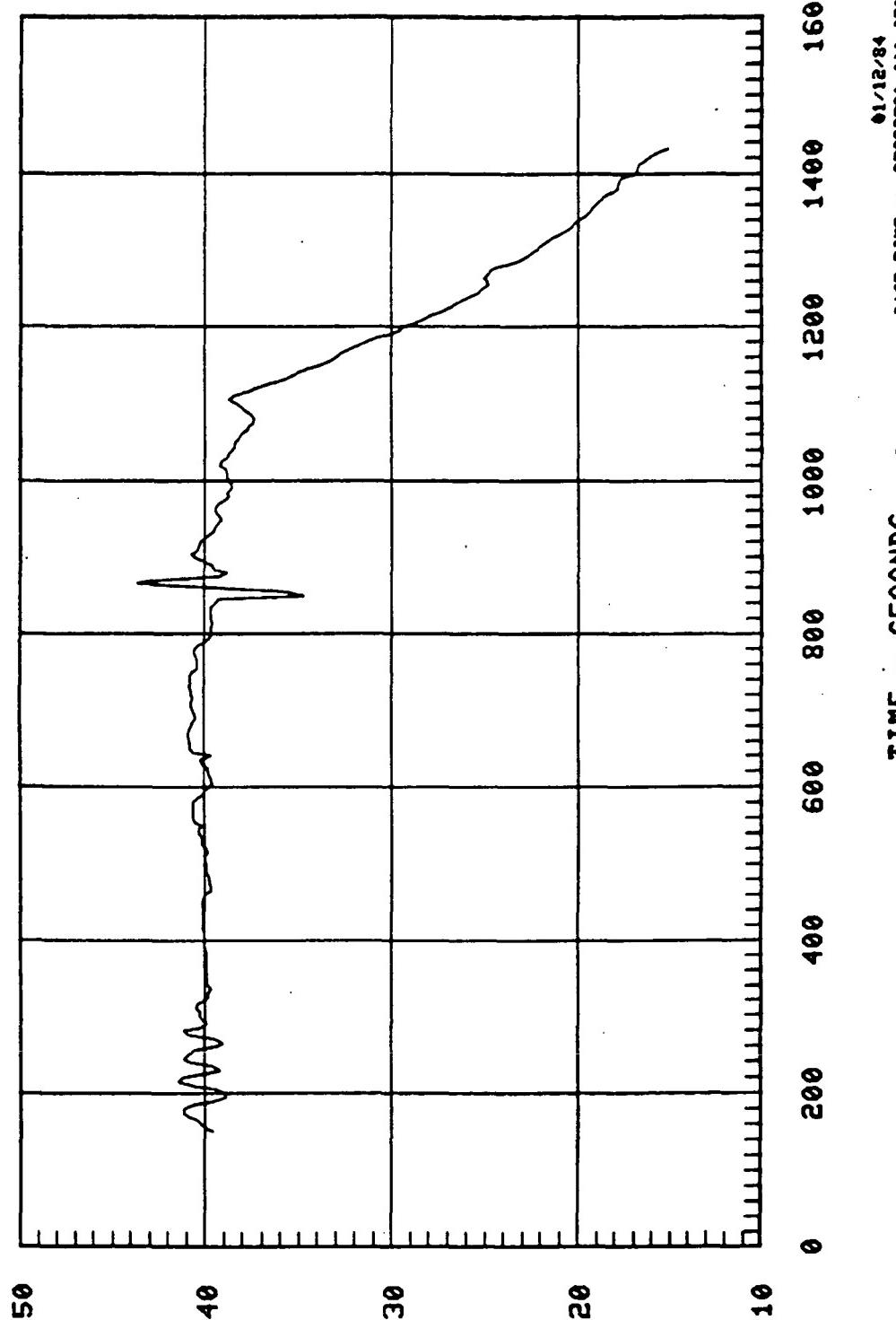
STS-4

965-1360 SEC



STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

STS-5
158-1430 SEC

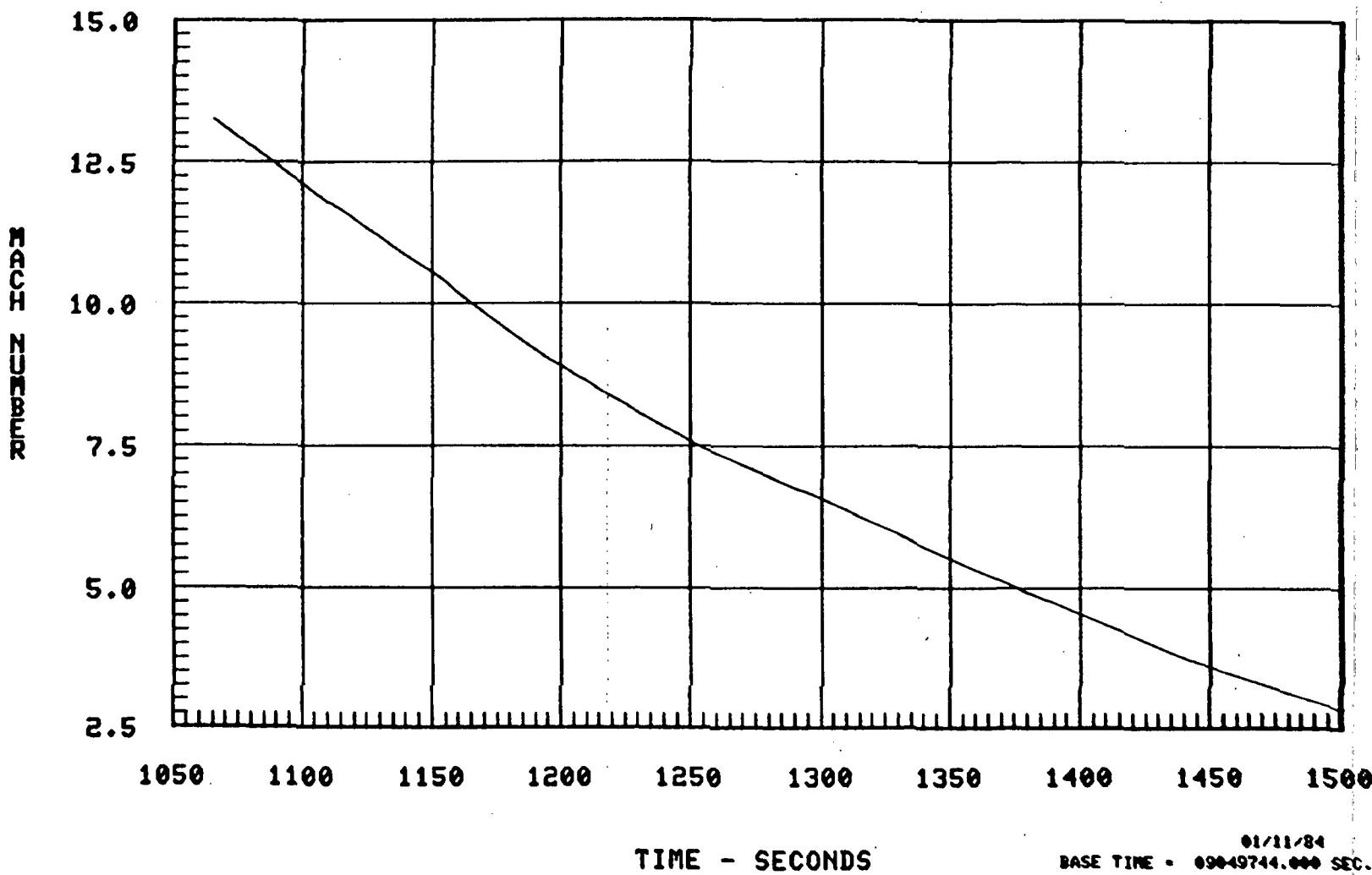


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STS-1

1065-1500 SEC

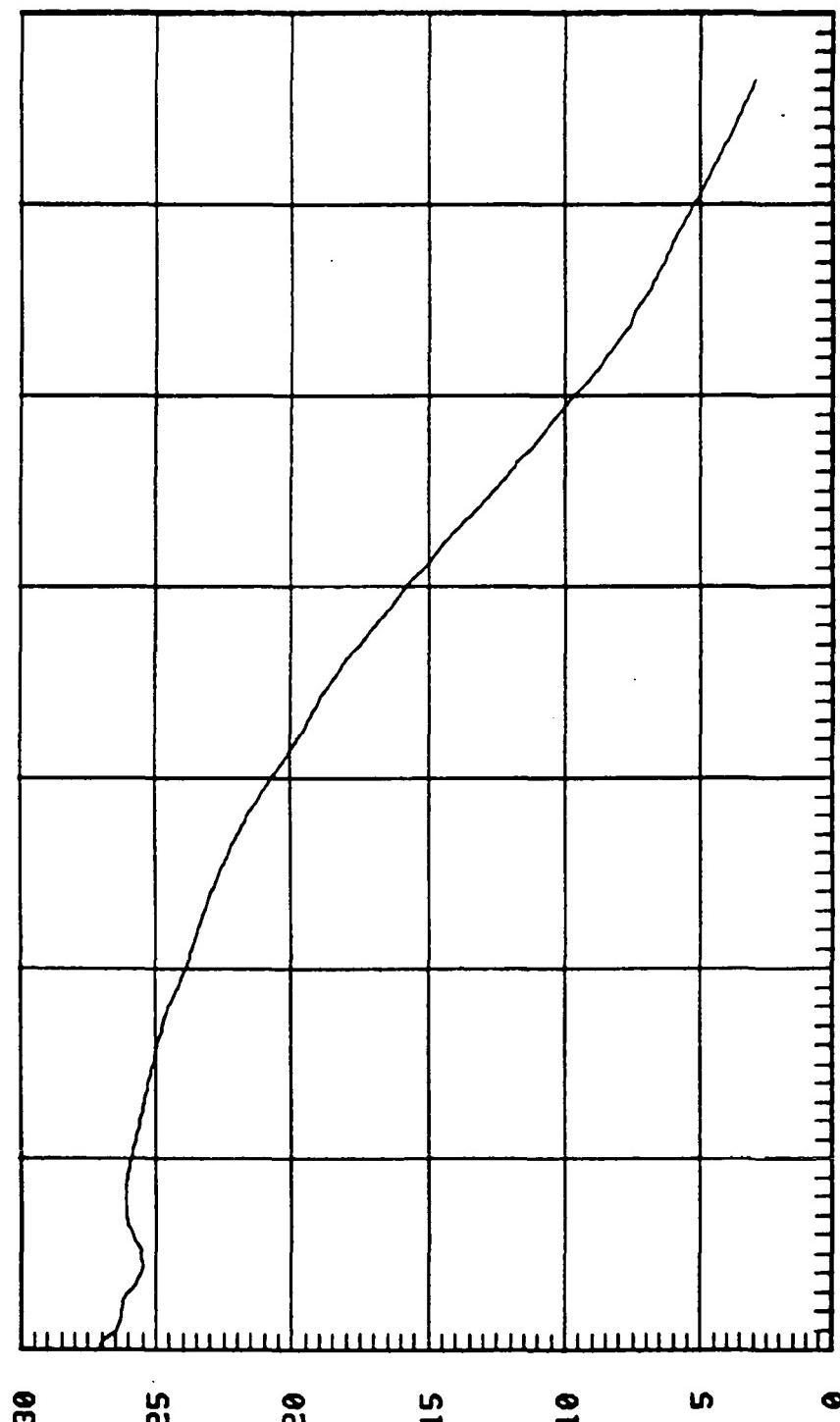


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STS-2
200-1530 SEC



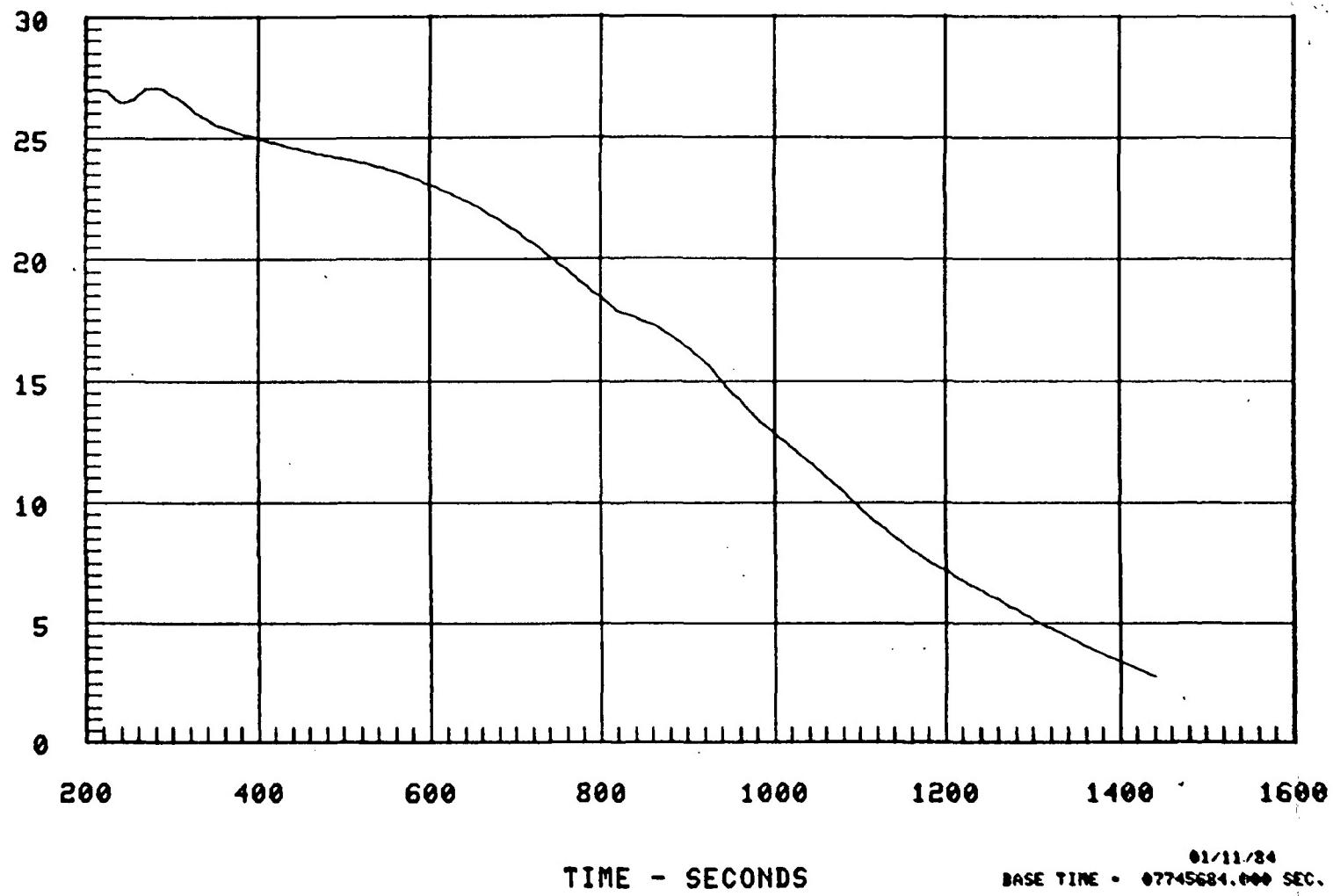
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_____ STS-3

200-1440 SEC

A-8



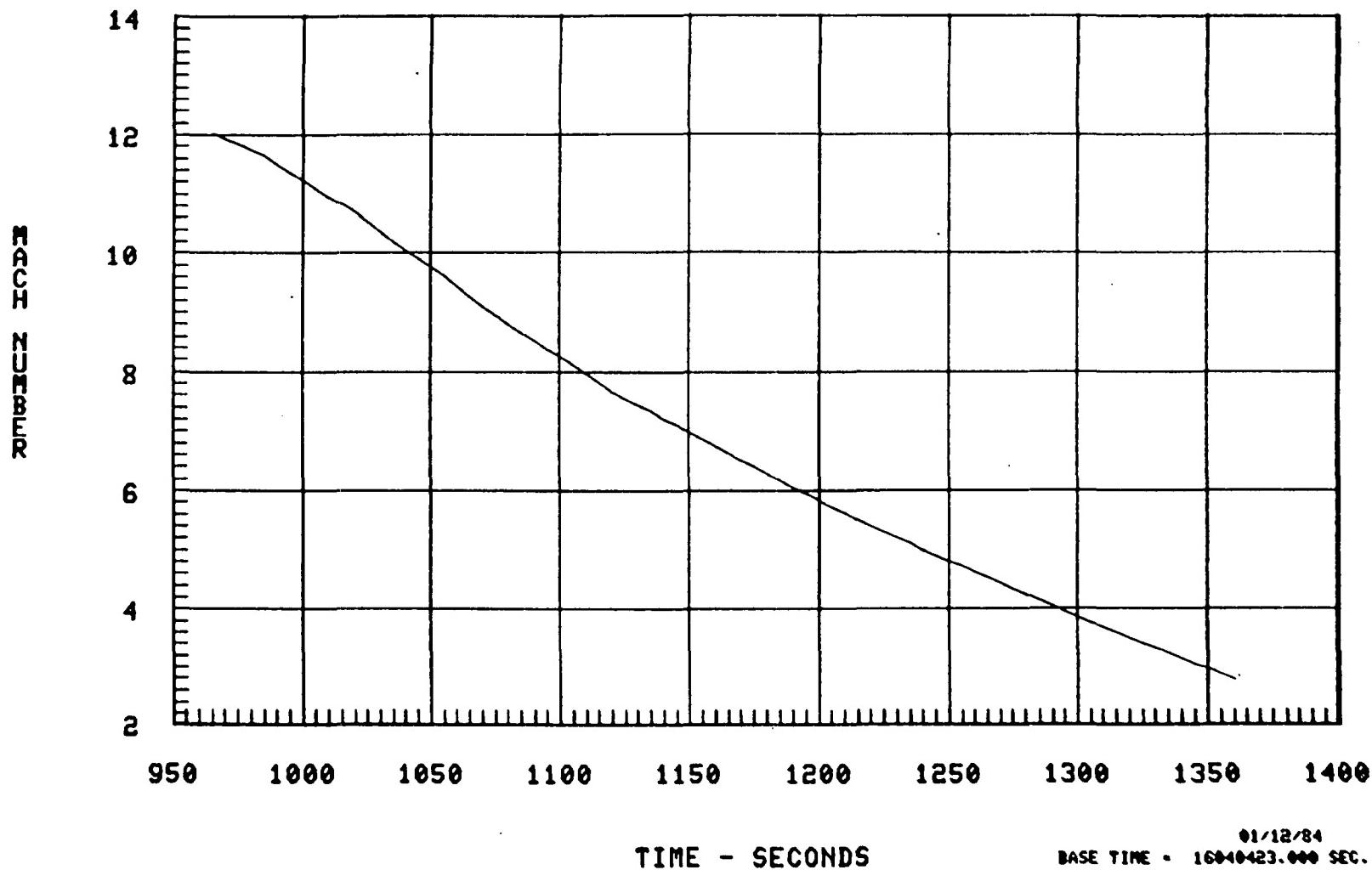
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_____ STS-4

965-1360 SEC



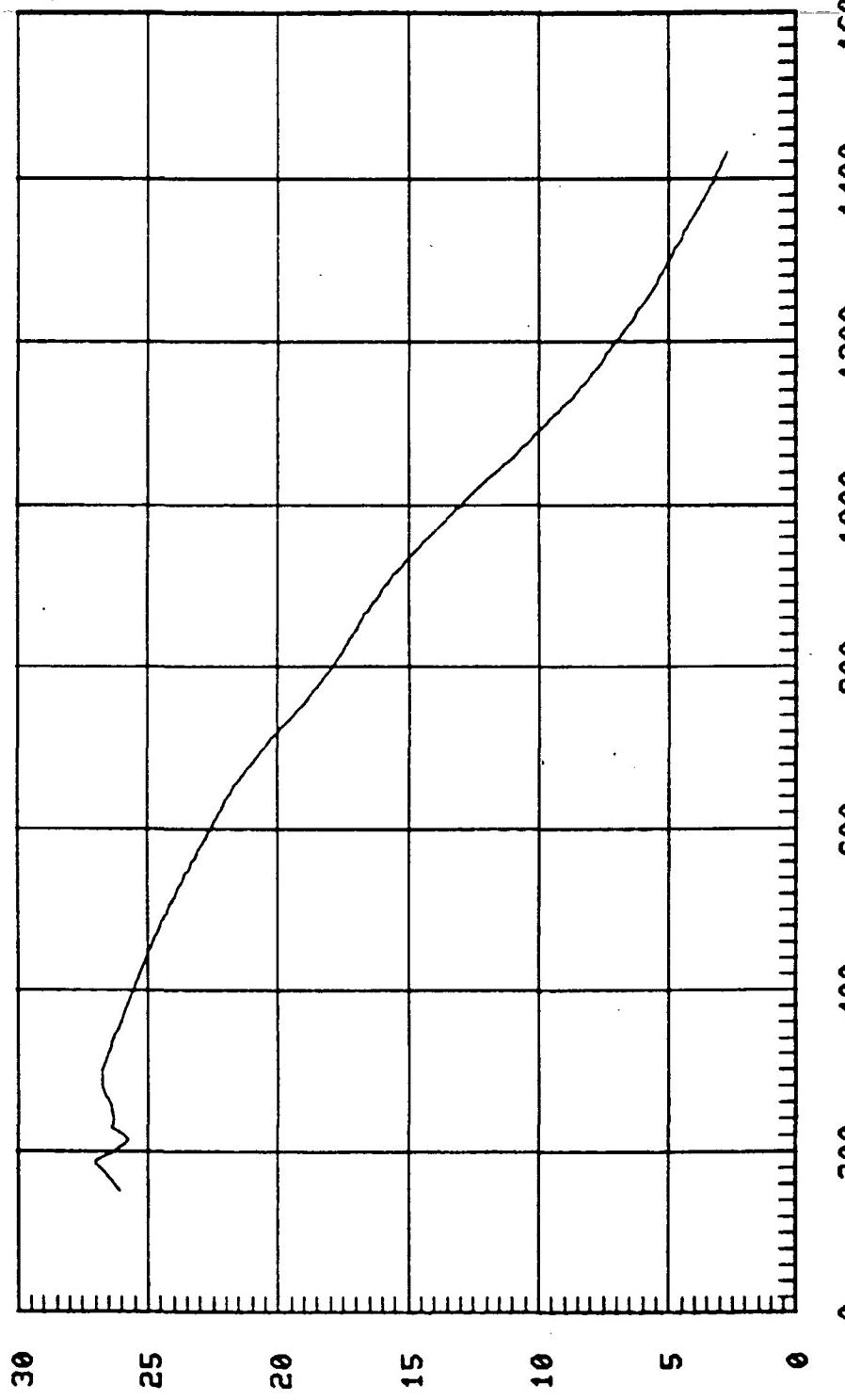
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150-1430 SEC

STS-5



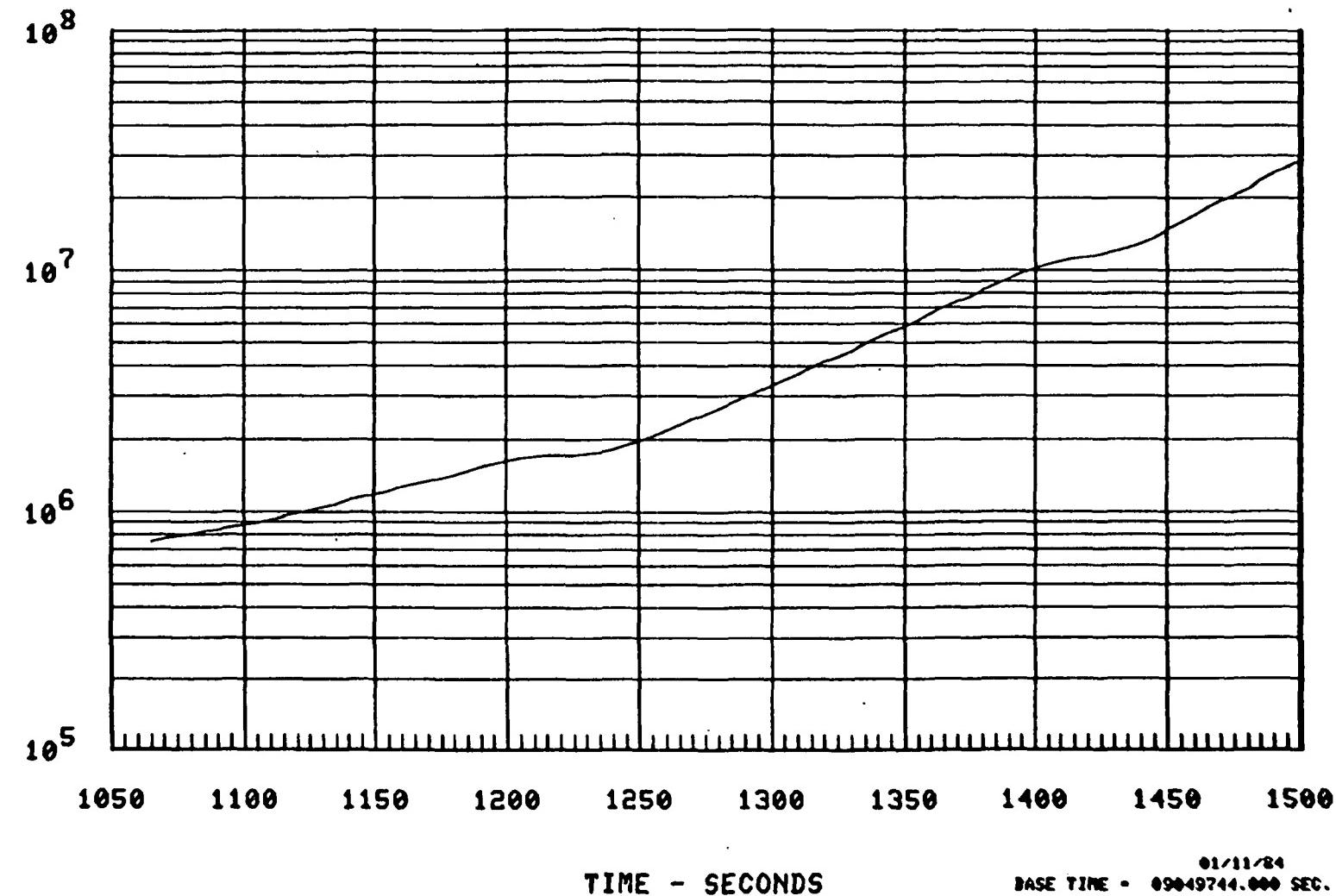
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_____ STS-1

1065-1500 SEC

A-11



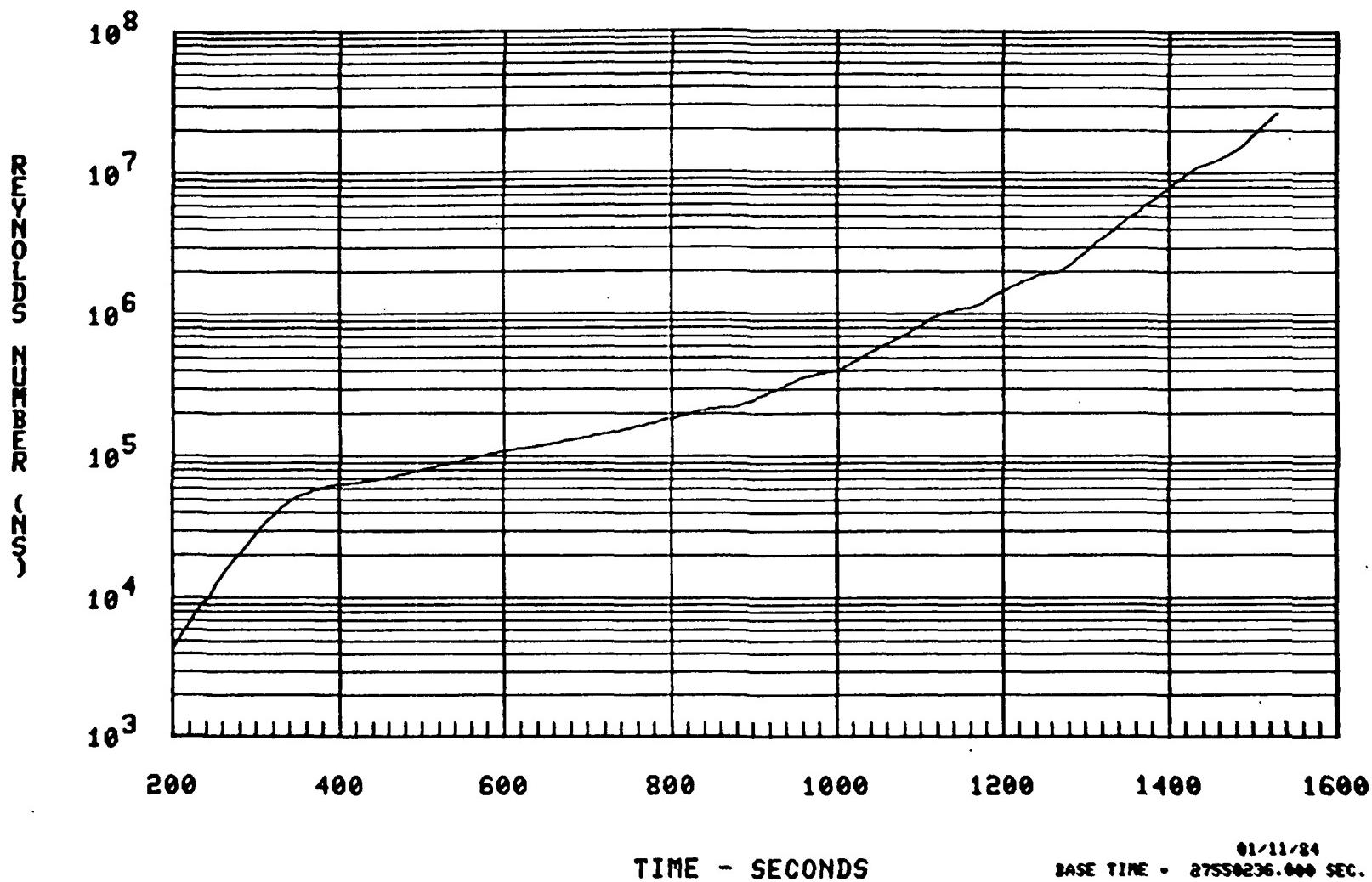
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STS-2

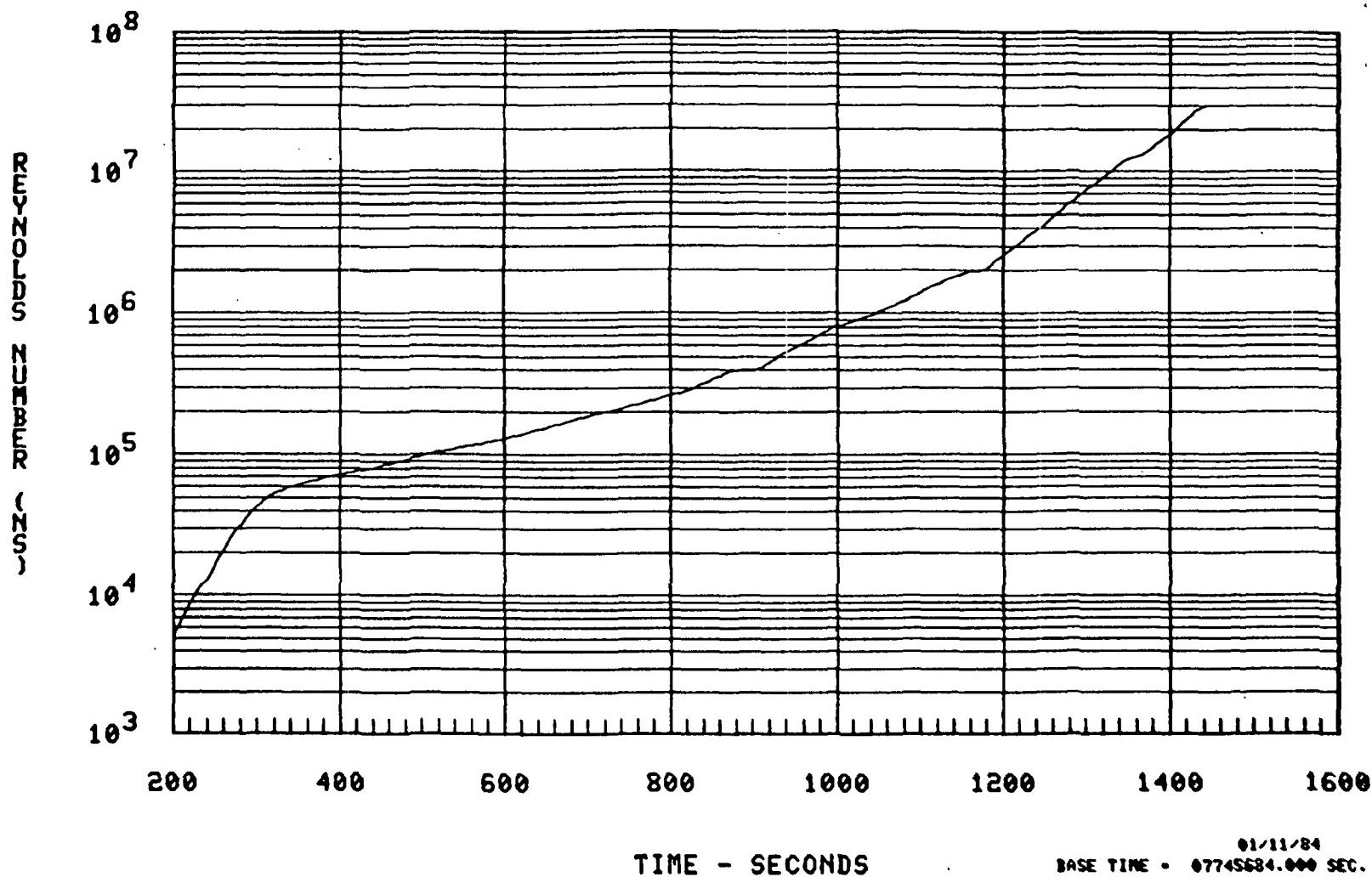
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— STS-3

200-1440 SEC



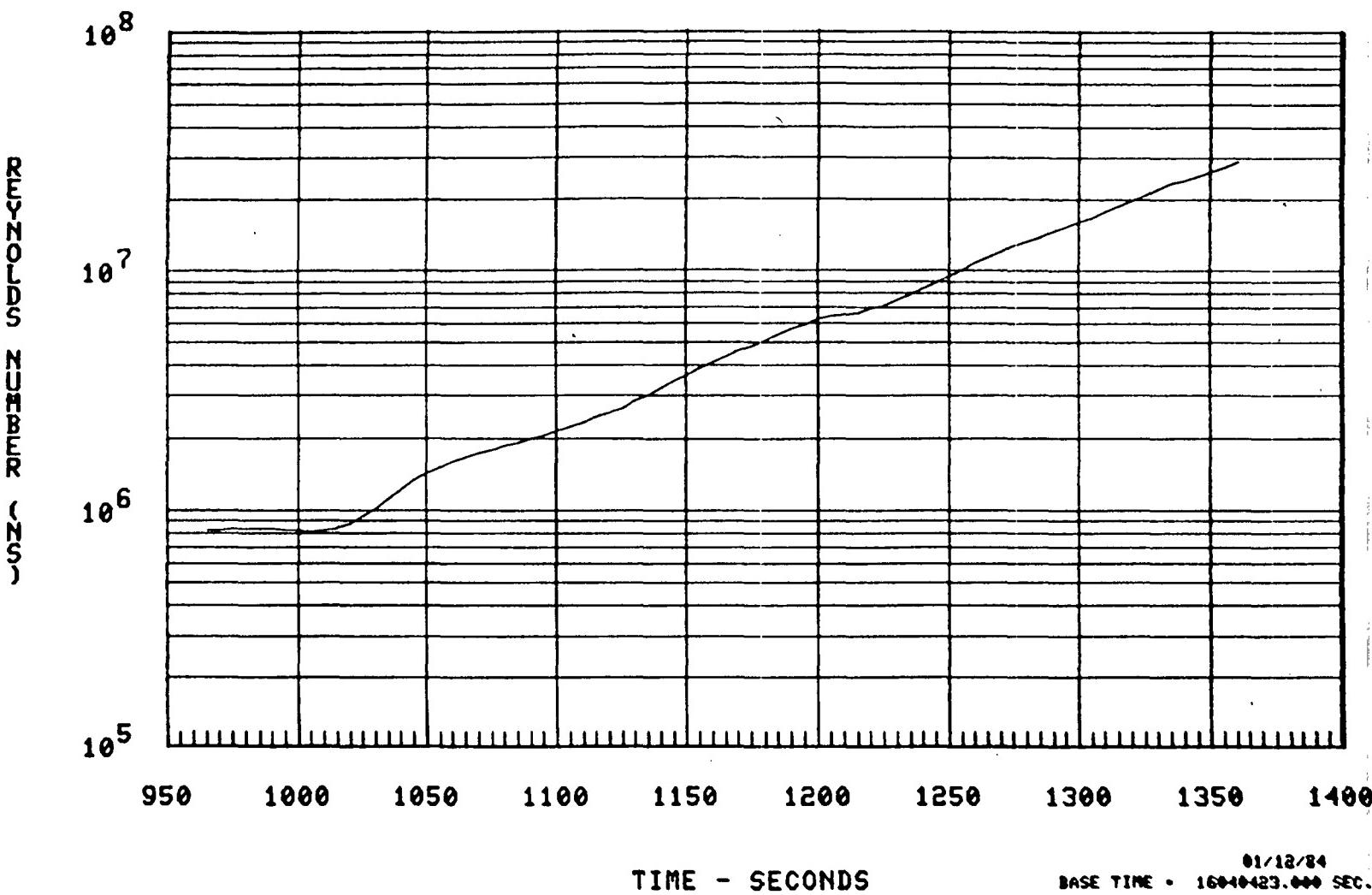
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STS-4

965-1360 SEC

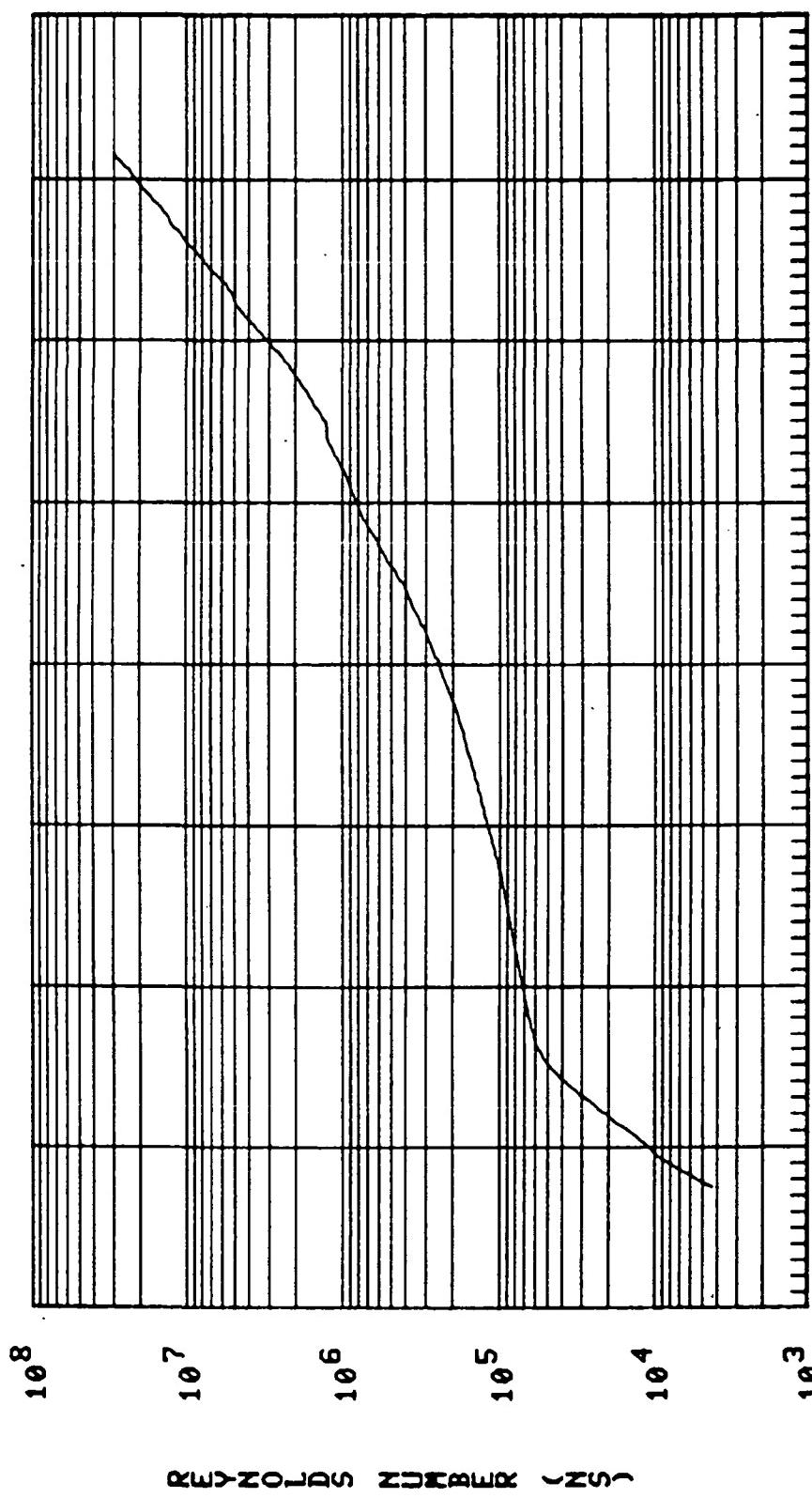


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150-1430 SEC
STS-5

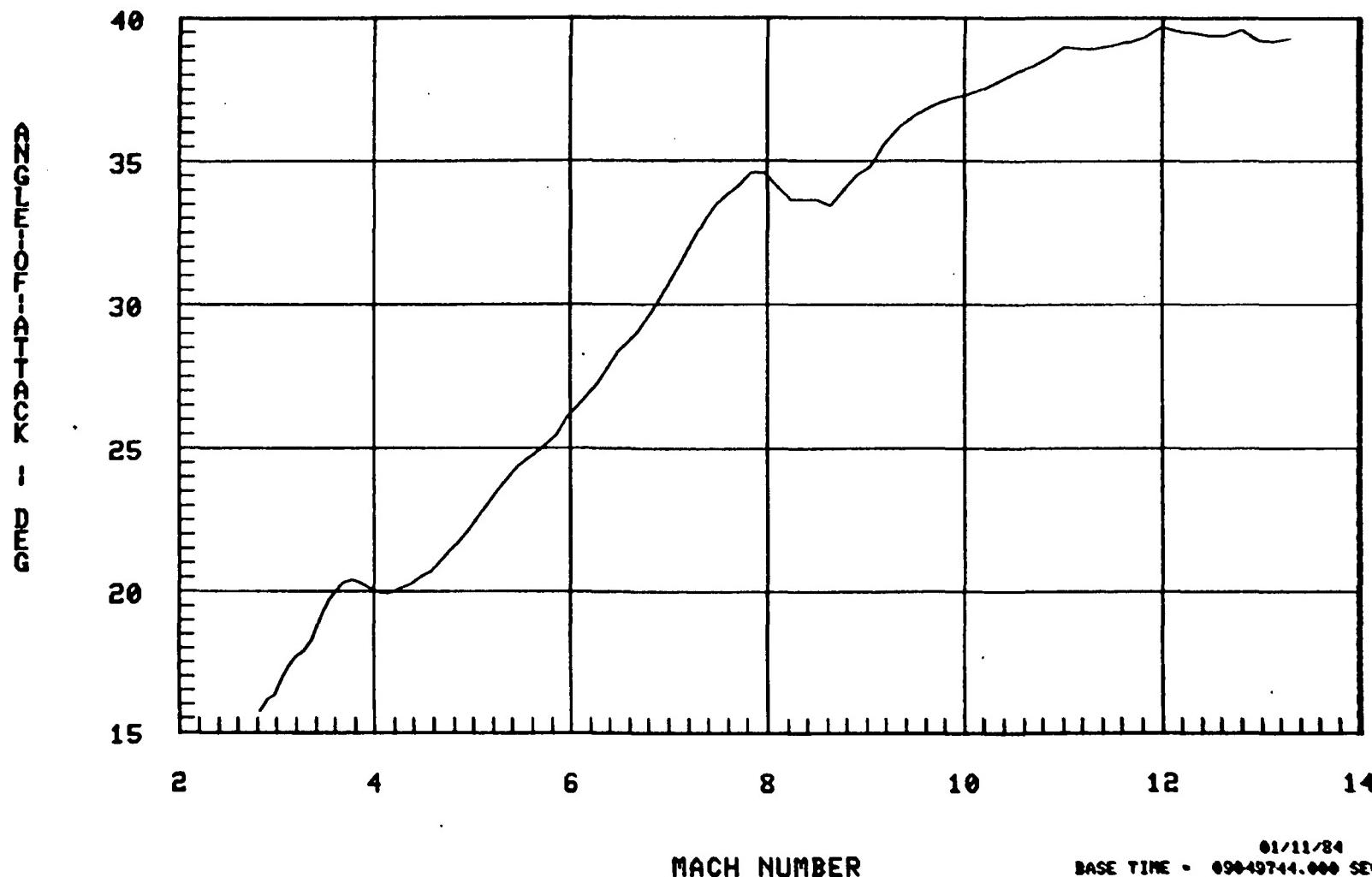


TIME - SECONDS
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01/12/84

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STS-1

1065-1500 SEC

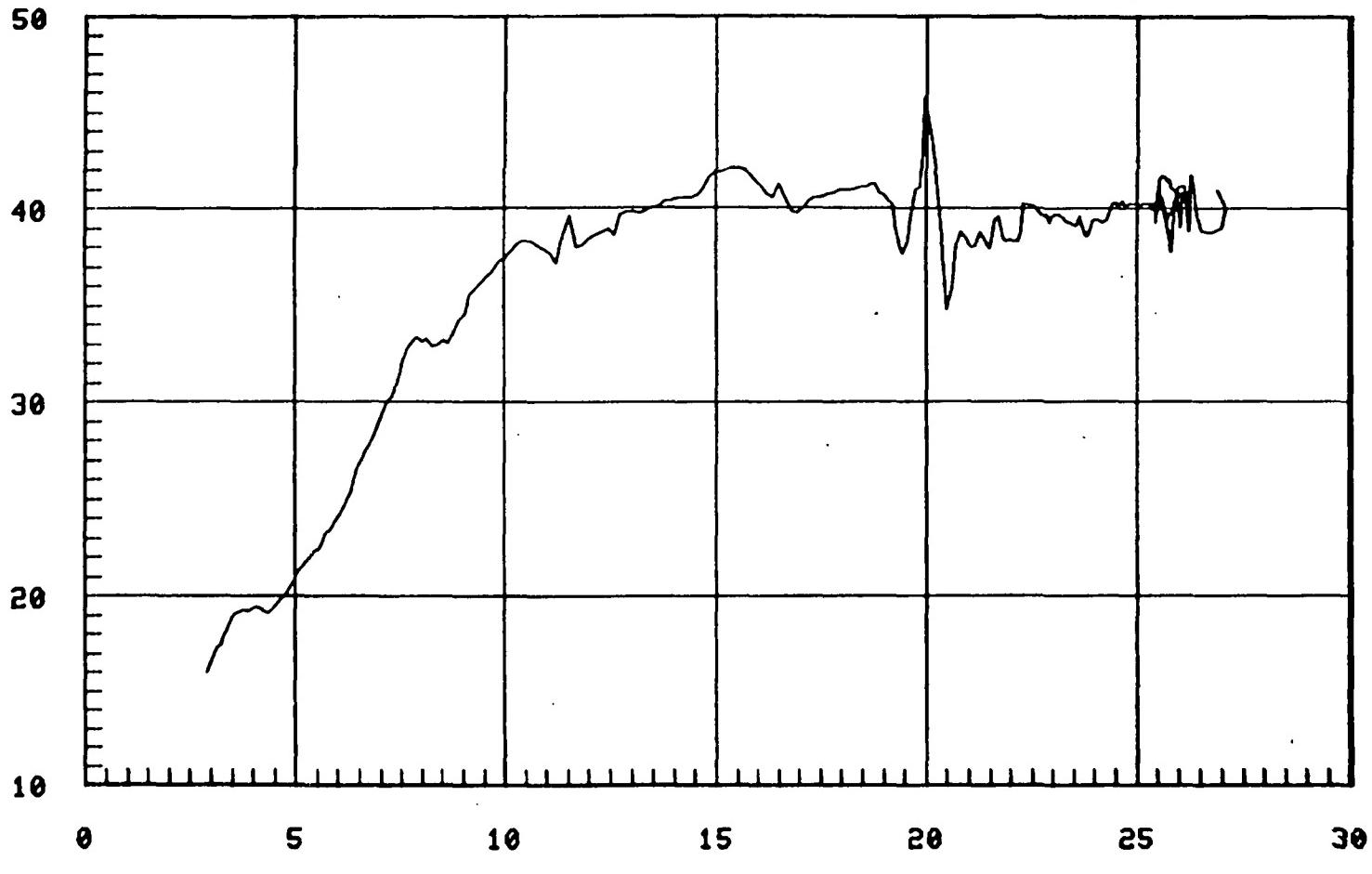


STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

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200-1530 SEC

A-17 ELEVATION-ATTACK - DEG



MACH NUMBER

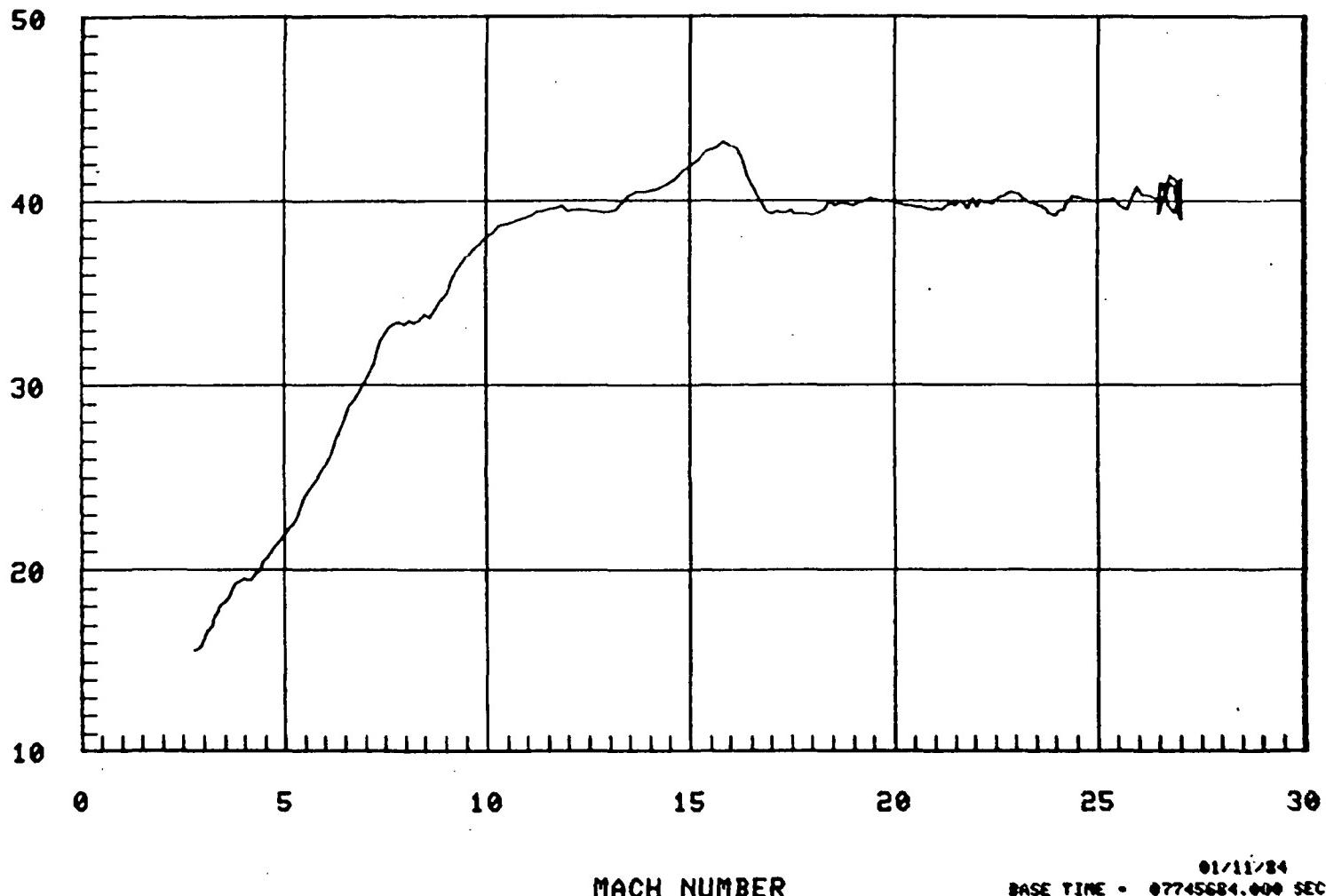
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_____ STS-3

200-1440 SEC

AZIMUTH-OF-ATTACK - DEG



A-18

MACH NUMBER

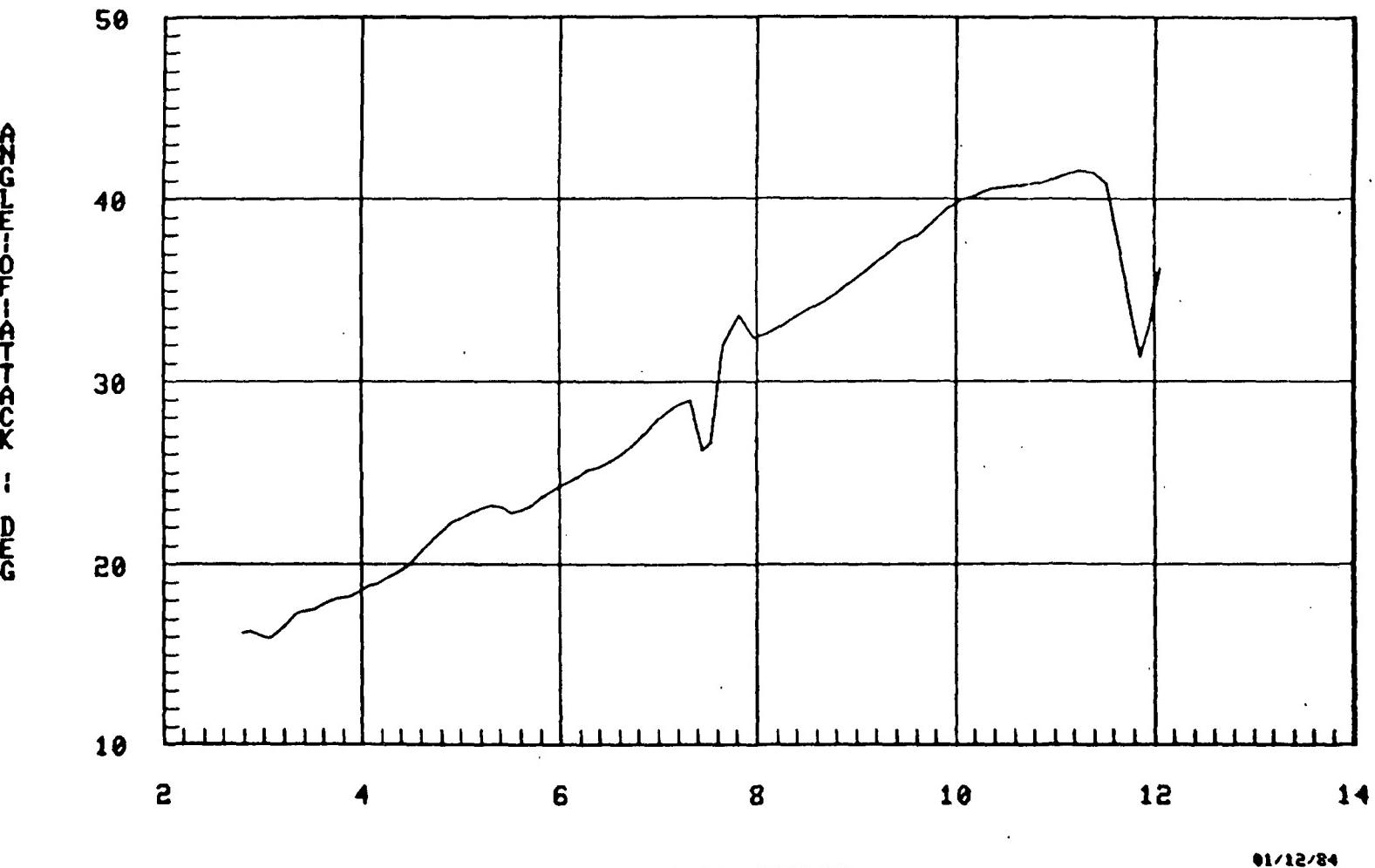
01/11/84
BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

— STS-4

965-1360 SEC

A-19



MACH NUMBER

01/12/84
BASE TIME - 16040423.000 SEC.

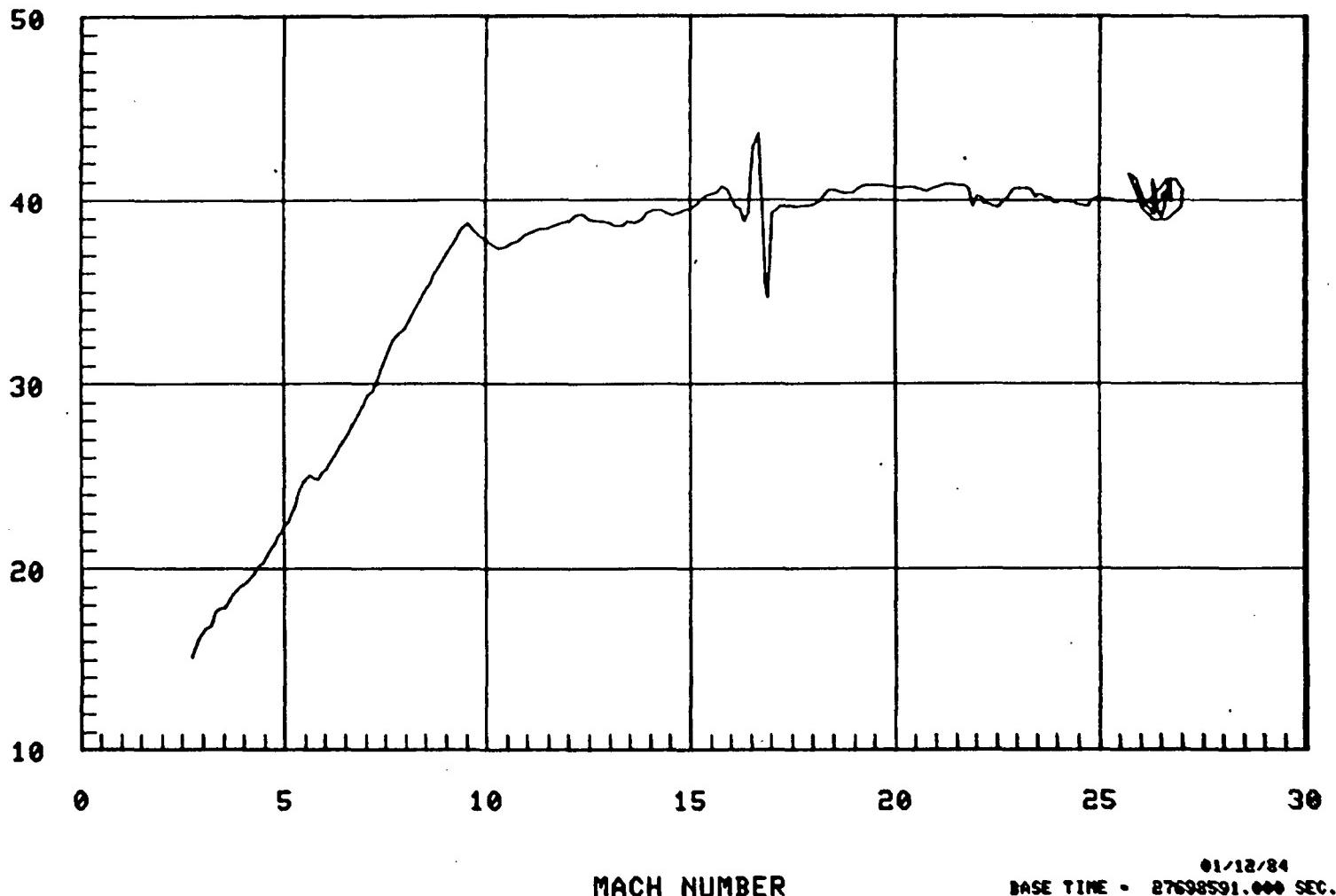
STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

STS-5

150-1430 SEC

RECORDED ON - DATE - 000

A-20

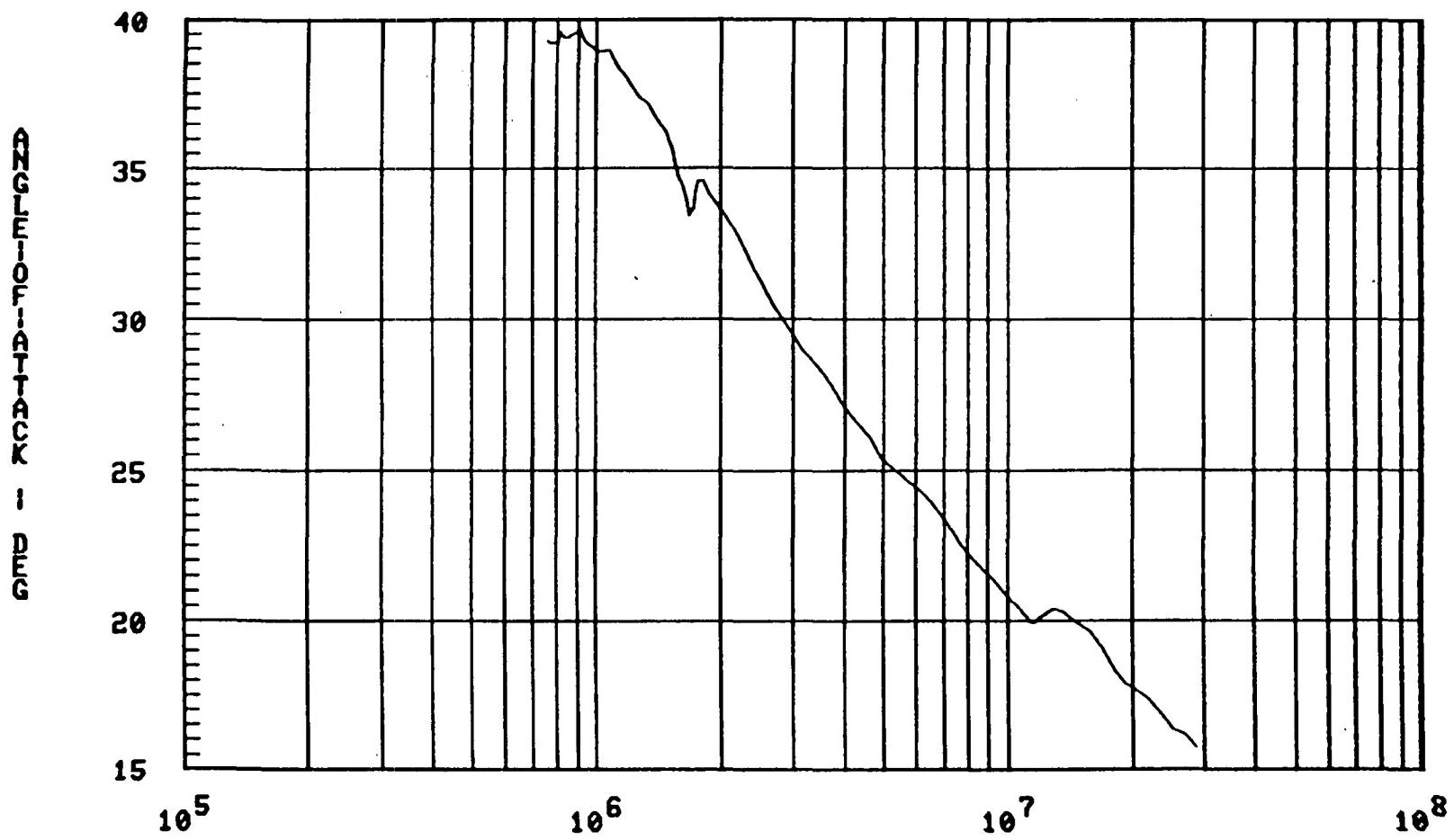


01/12/84
BASE TIME - 87698591.000 SEC.

STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

STS-1

1065-1500 SEC



A-21

REYNOLDS NUMBER (NS)

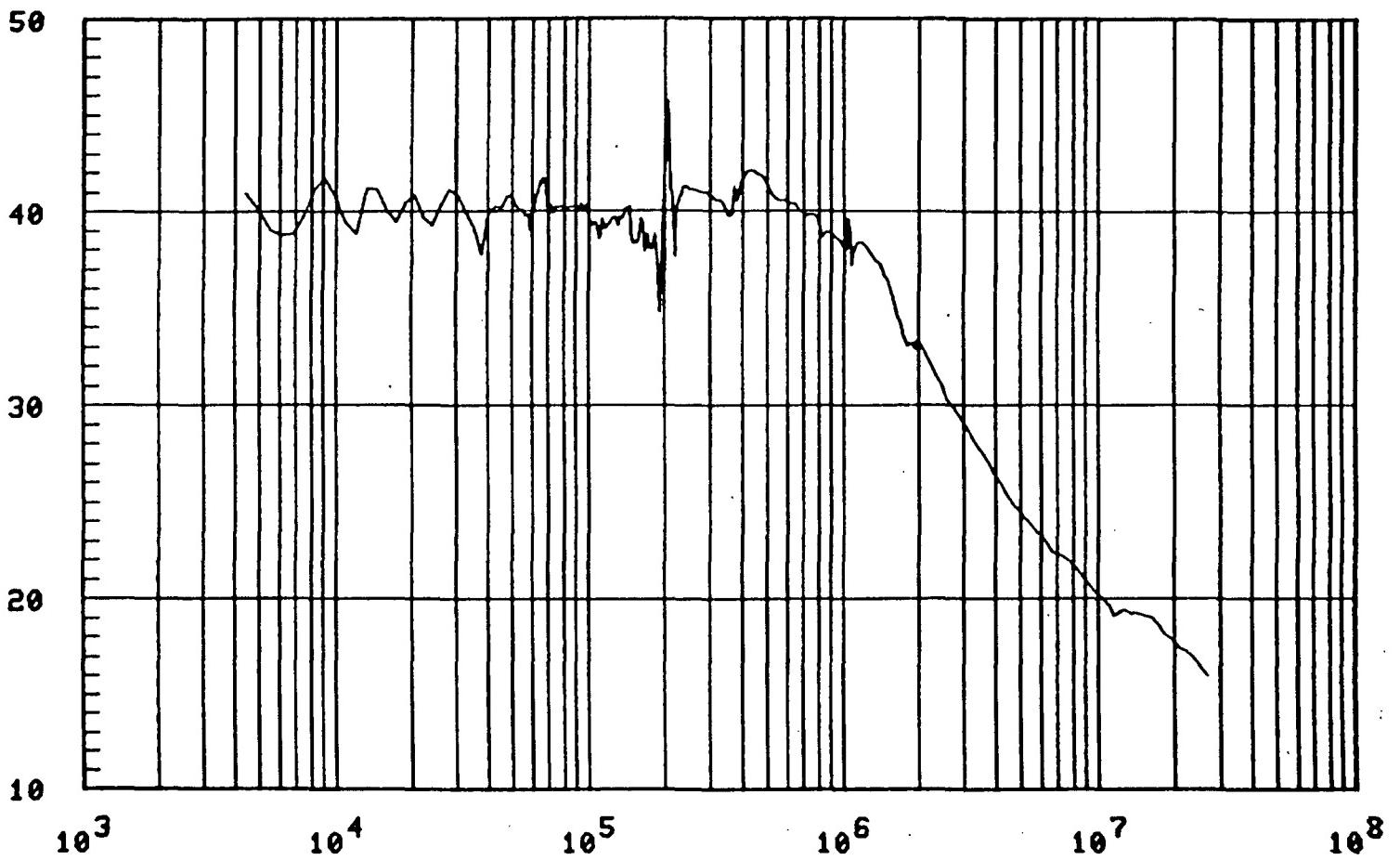
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

STS-2

200-1530 SEC

DATA FOR - 107 FT LENGTH SIDE & PLB DOOR



A-22

REYNOLDS NUMBER (NS)

01/11/84
BASE TIME = 27556236.000 SEC.

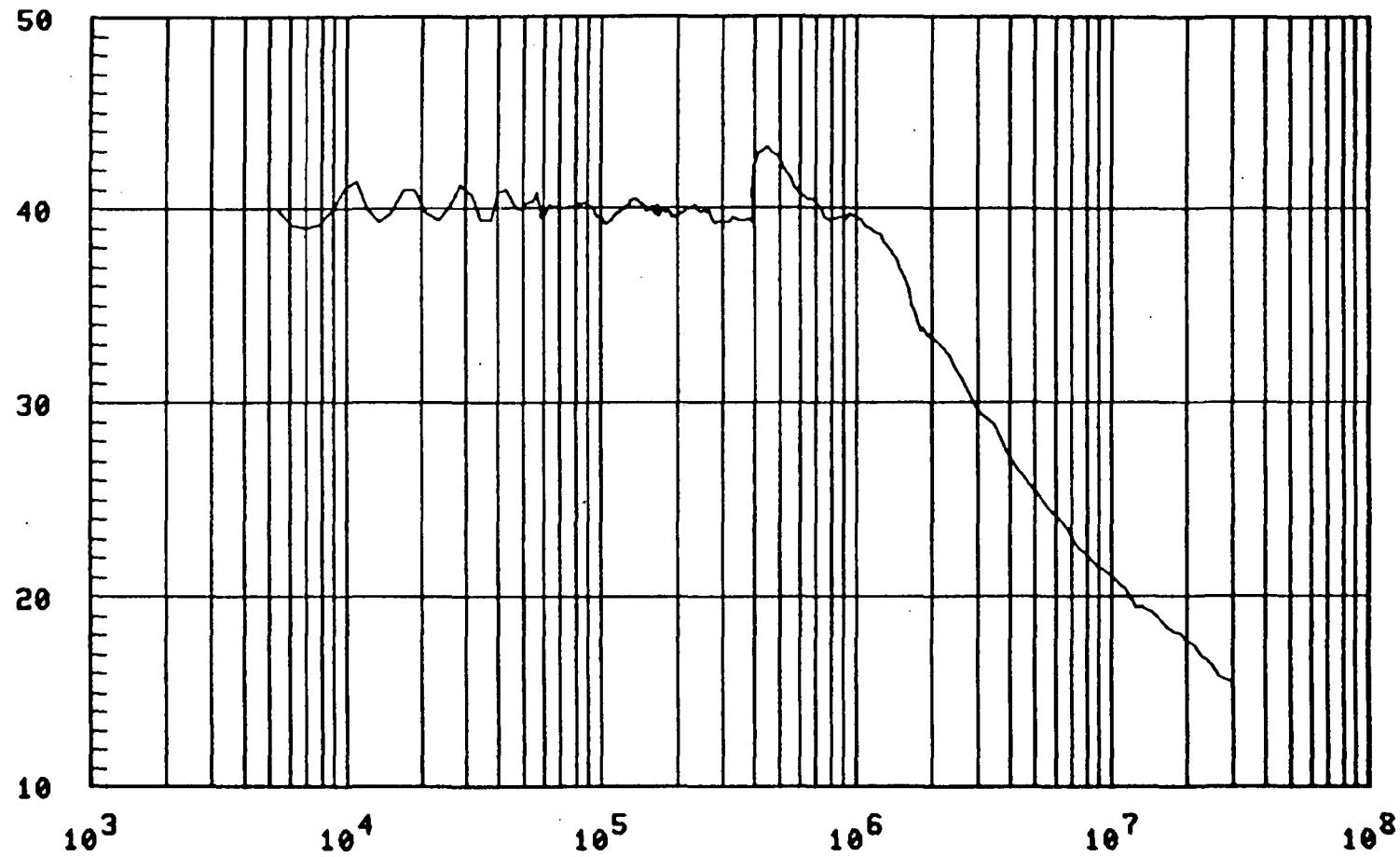
STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

STS-3

200-1440 SEC

A-23

ANGLE OF ATTACK - DEG



REYNOLDS NUMBER (NS)

01/11/84
BASE TIME = 07745684.000 SEC.

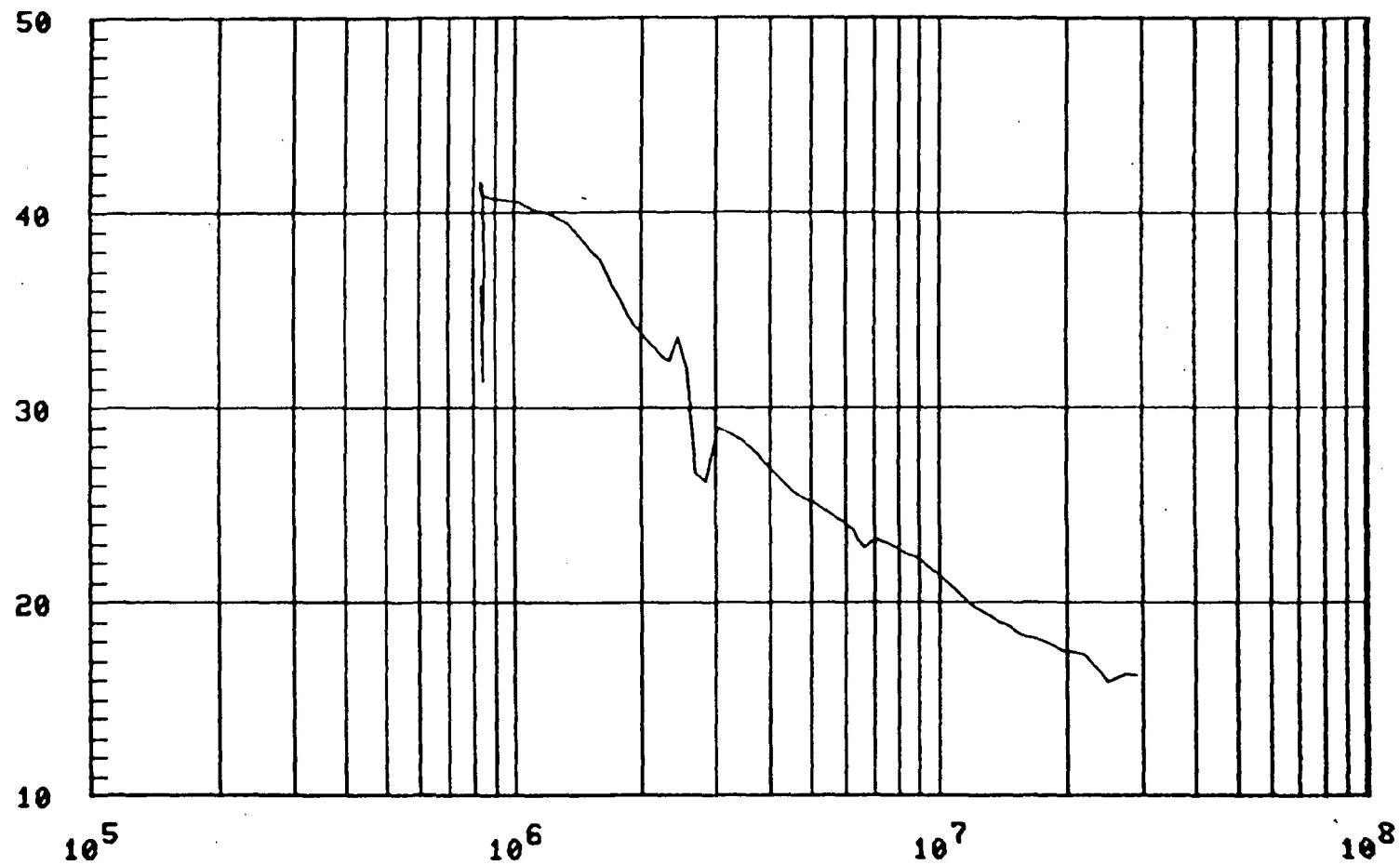
STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

STS-4

965-1360 SEC

AERODYNAMIC ATTACH - DUE

A-24



REYNOLDS NUMBER (NS)

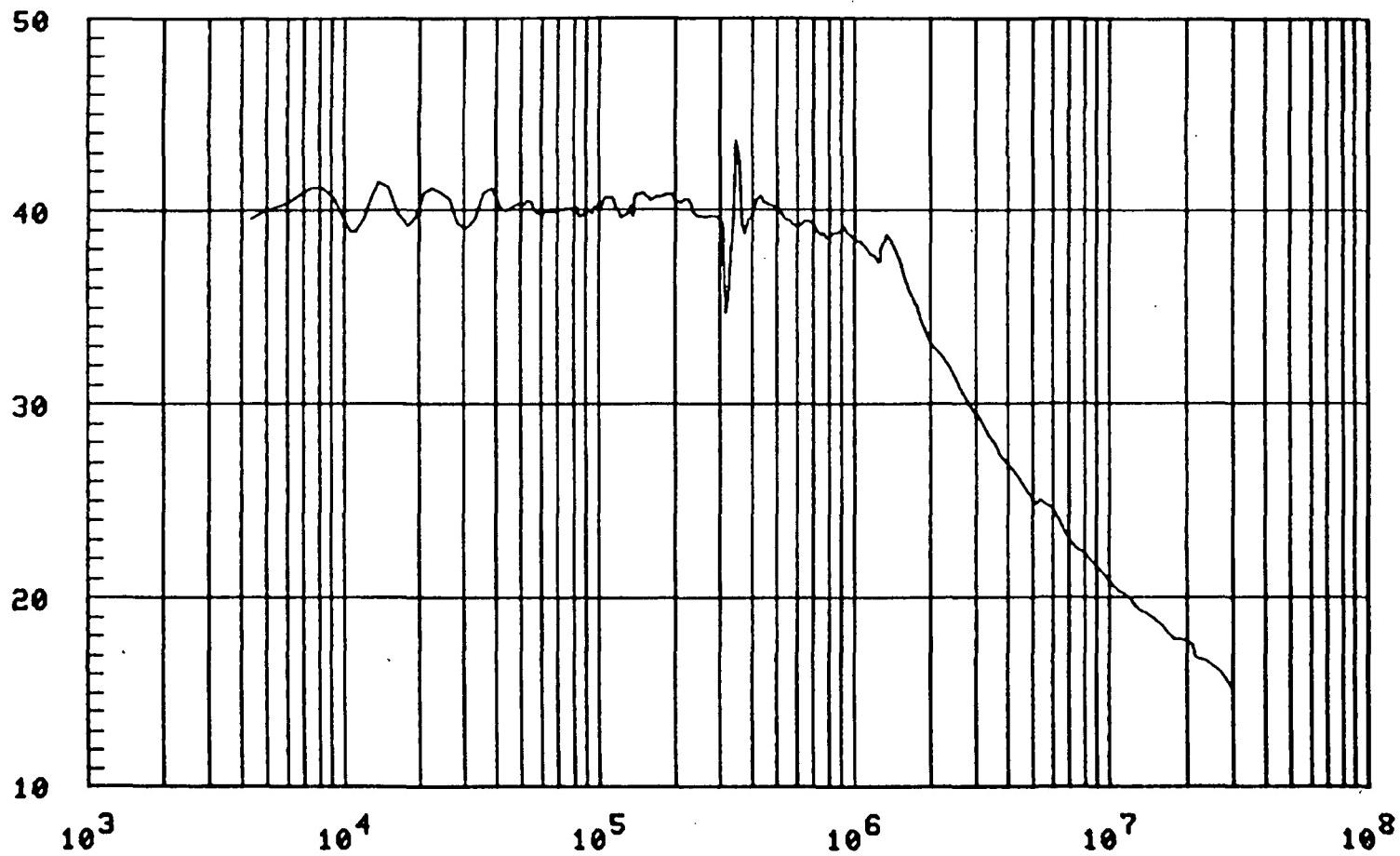
01/12/84
BASE TIME = 16040483.000 SEC.

STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

_____ STS-5

150-1430 SEC

A-25



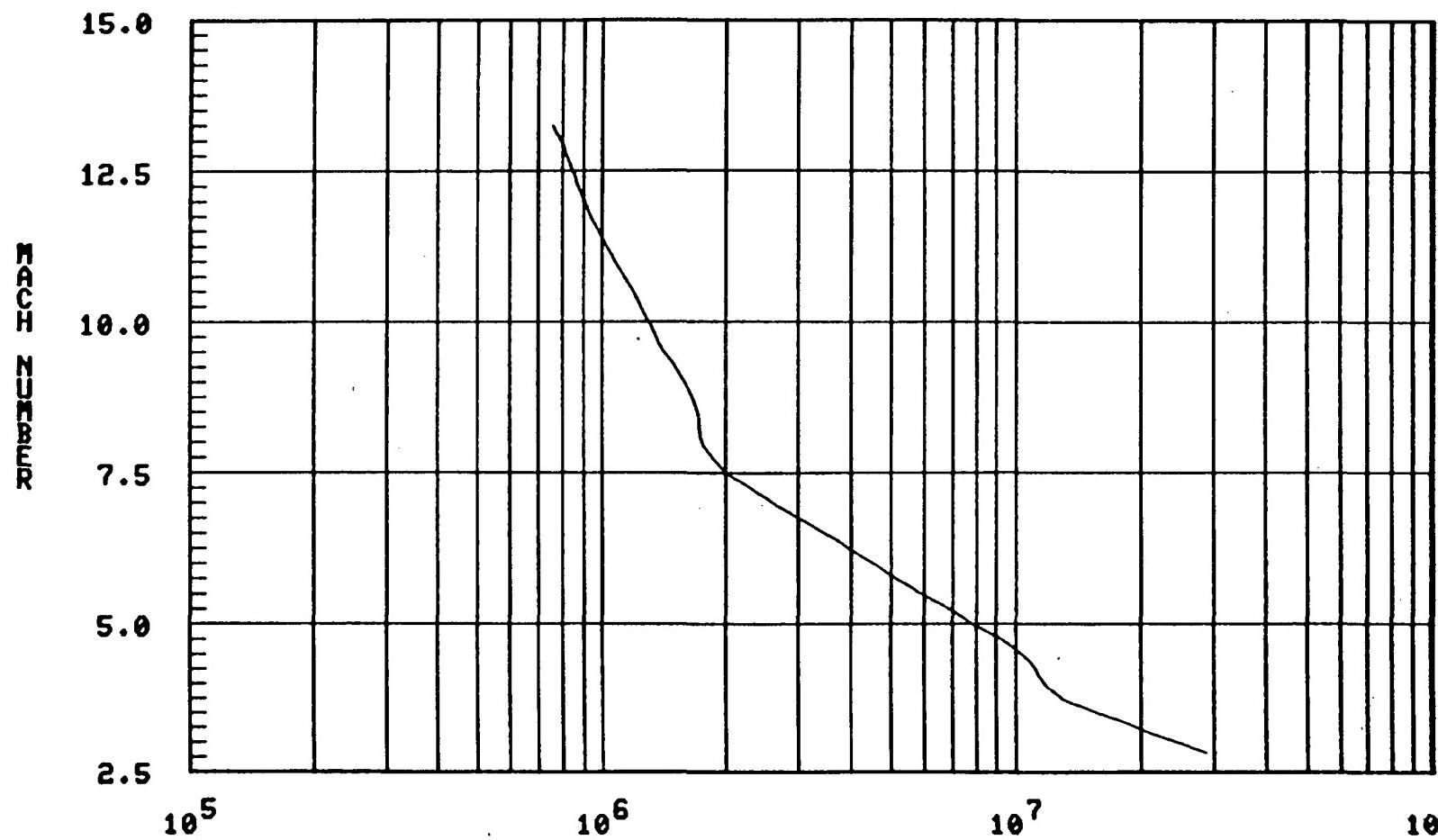
REYNOLDS NUMBER (Ns)

01/12/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

STS-1

1065-1500 SEC



A-26

REYNOLDS NUMBER (NS)

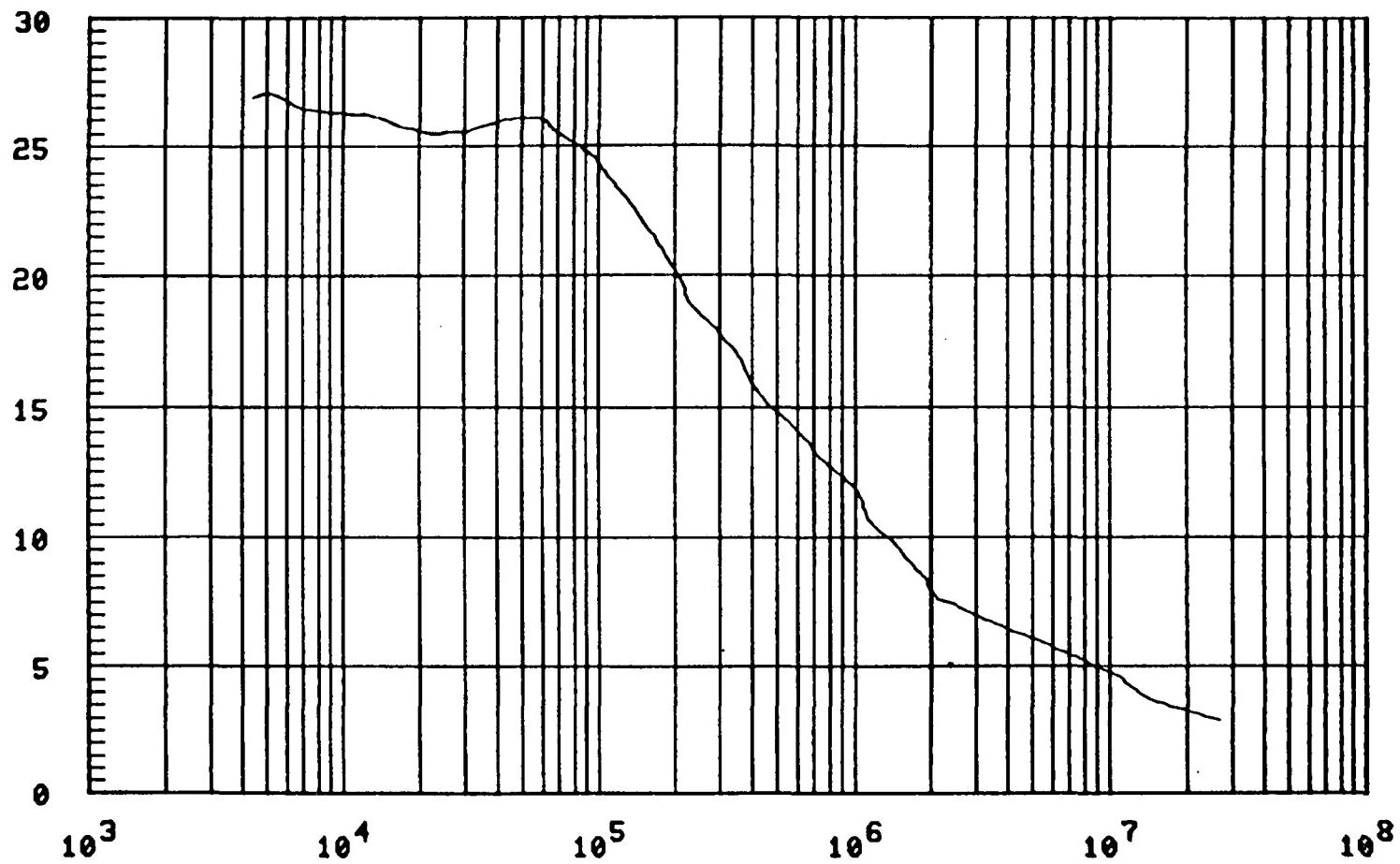
01/11/84
BASE TIME - 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

STS-2

200-1530 SEC

A-27



REYNOLDS NUMBER (NS)

01/11/84
BASE TIME = 27550236.000 SEC.

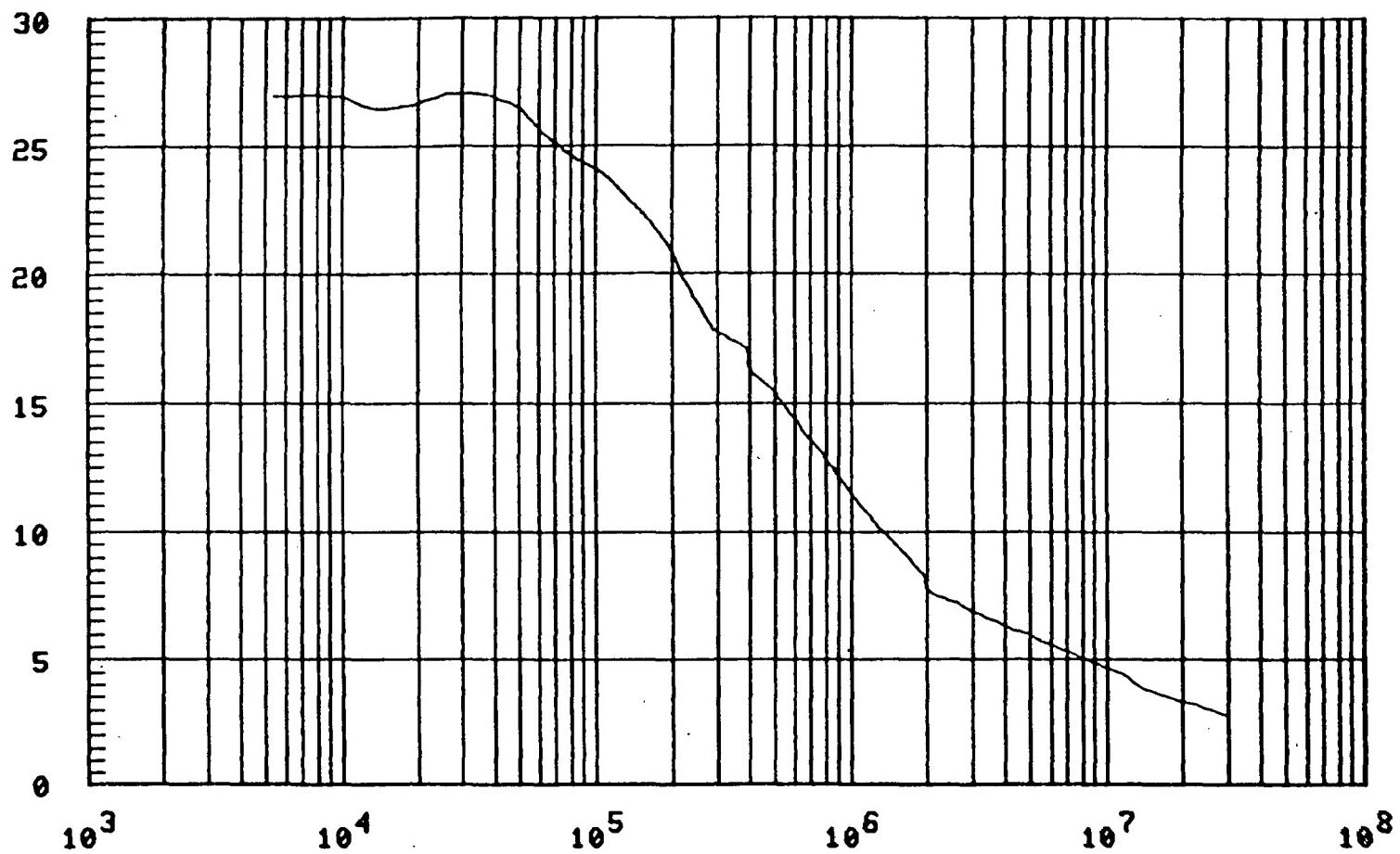
STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

_____ STS-3

200-1440 SEC

MACH NUMBER

A-28



REYNOLDS NUMBER (NS)

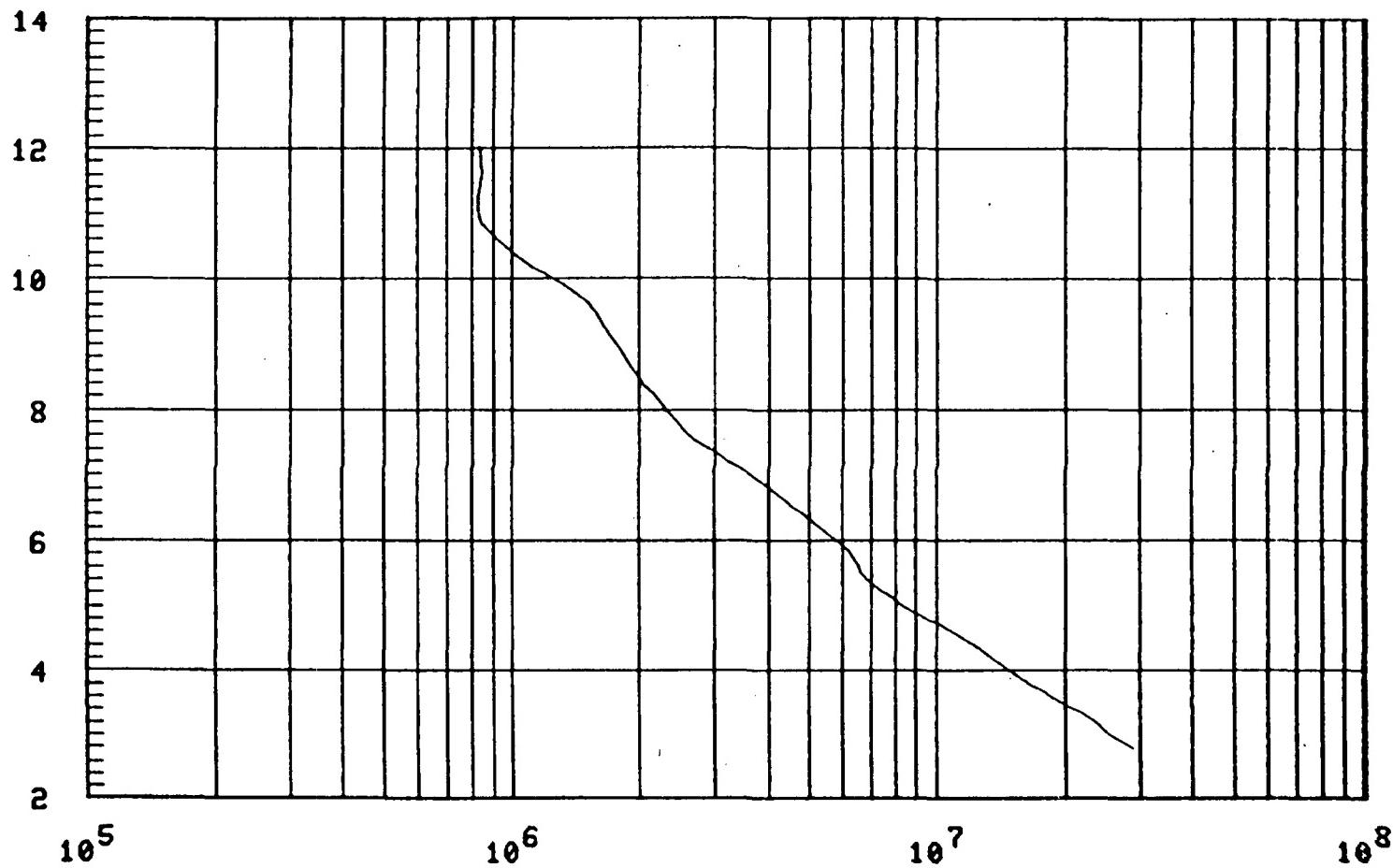
01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

— STS-4

965-1360 SEC

A-29



REYNOLDS NUMBER (NS)

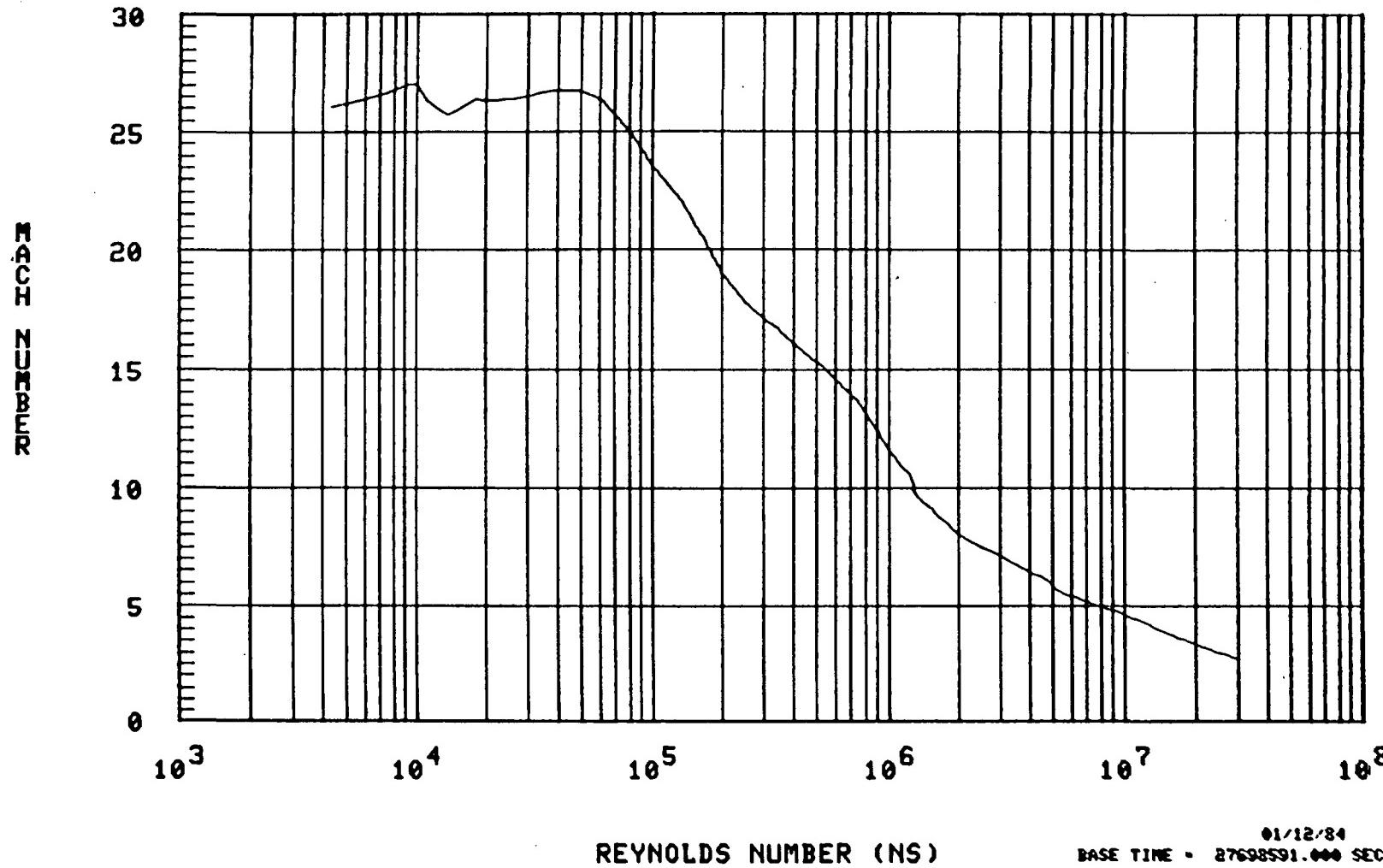
01/12/84

BASE TIME • 1604423.000 SEC.

STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

_____ STS-5

150-1430 SEC

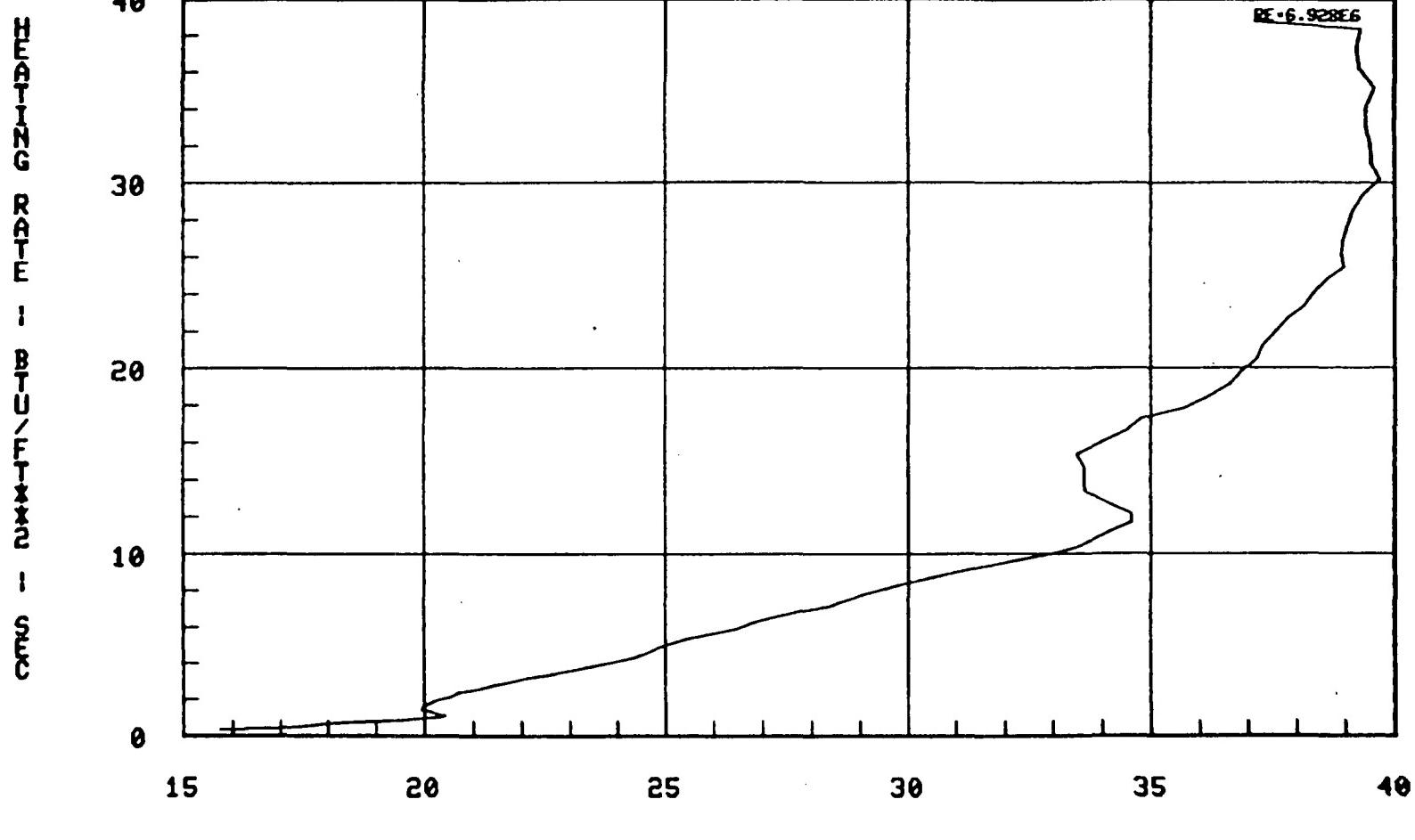


01/12/84
BASE TIME - 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

0REF

1065-1500 SEC



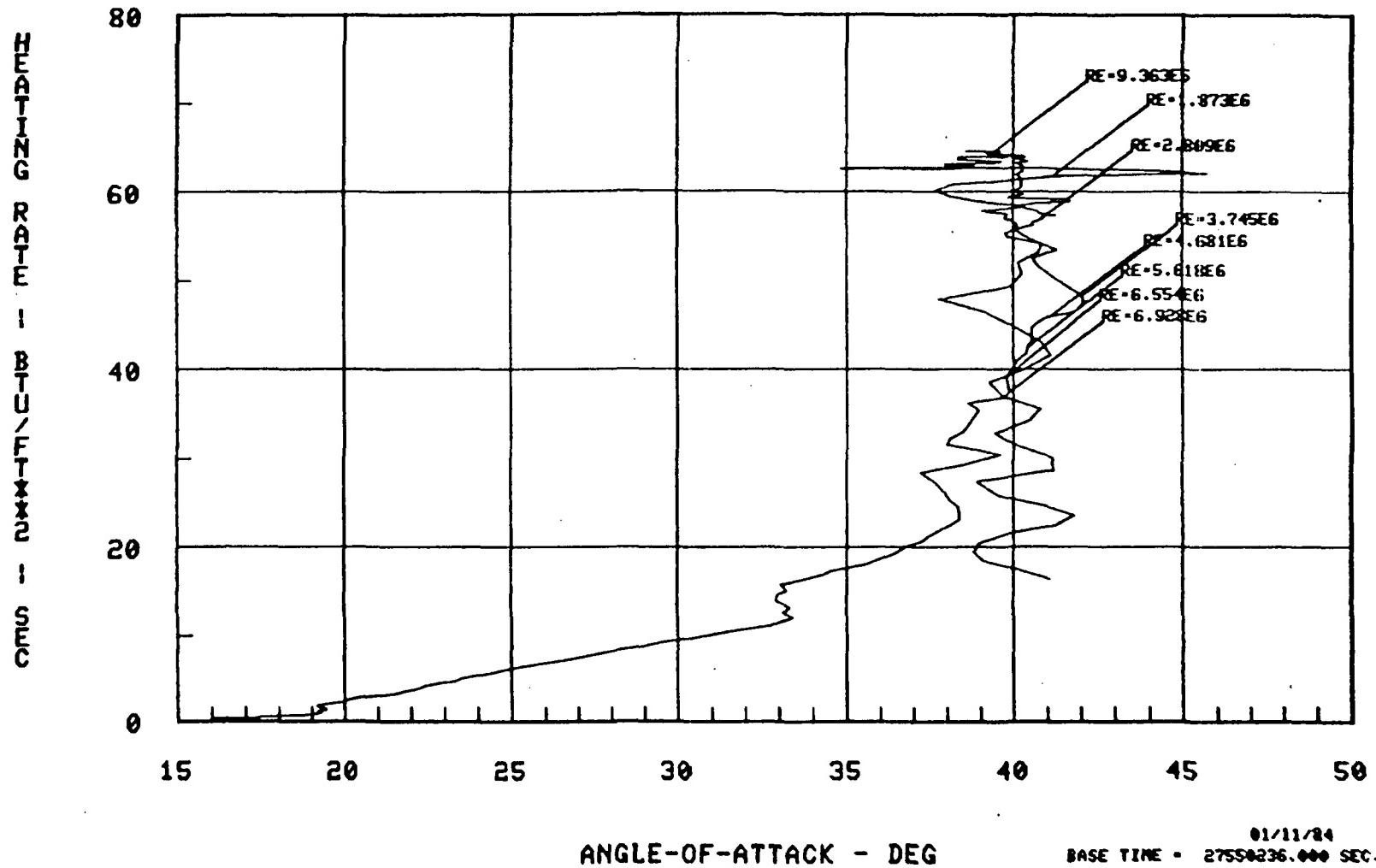
01/11/84
ANGLE-OF-ATTACK - DEG

BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

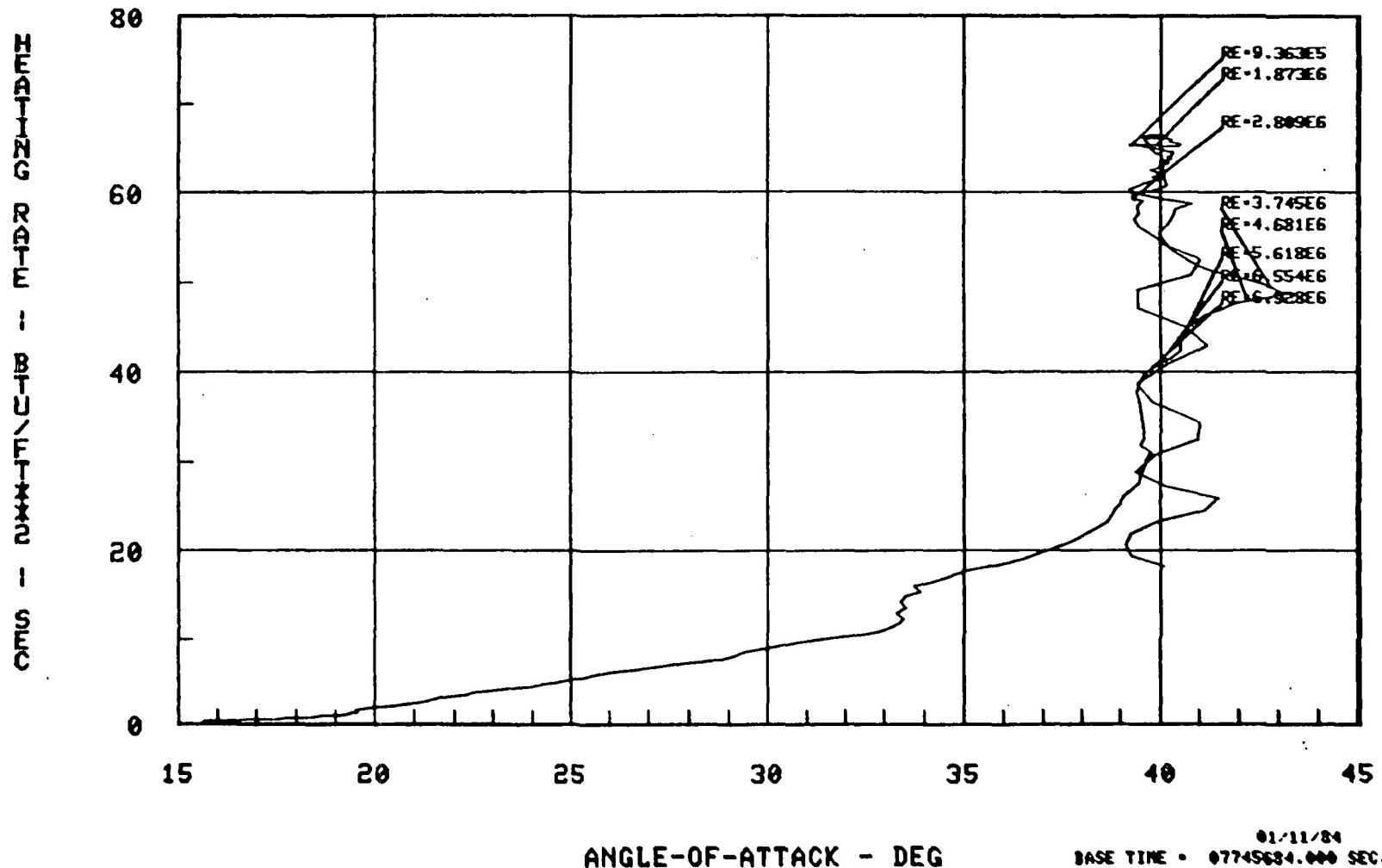
200-1530 SEC



STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

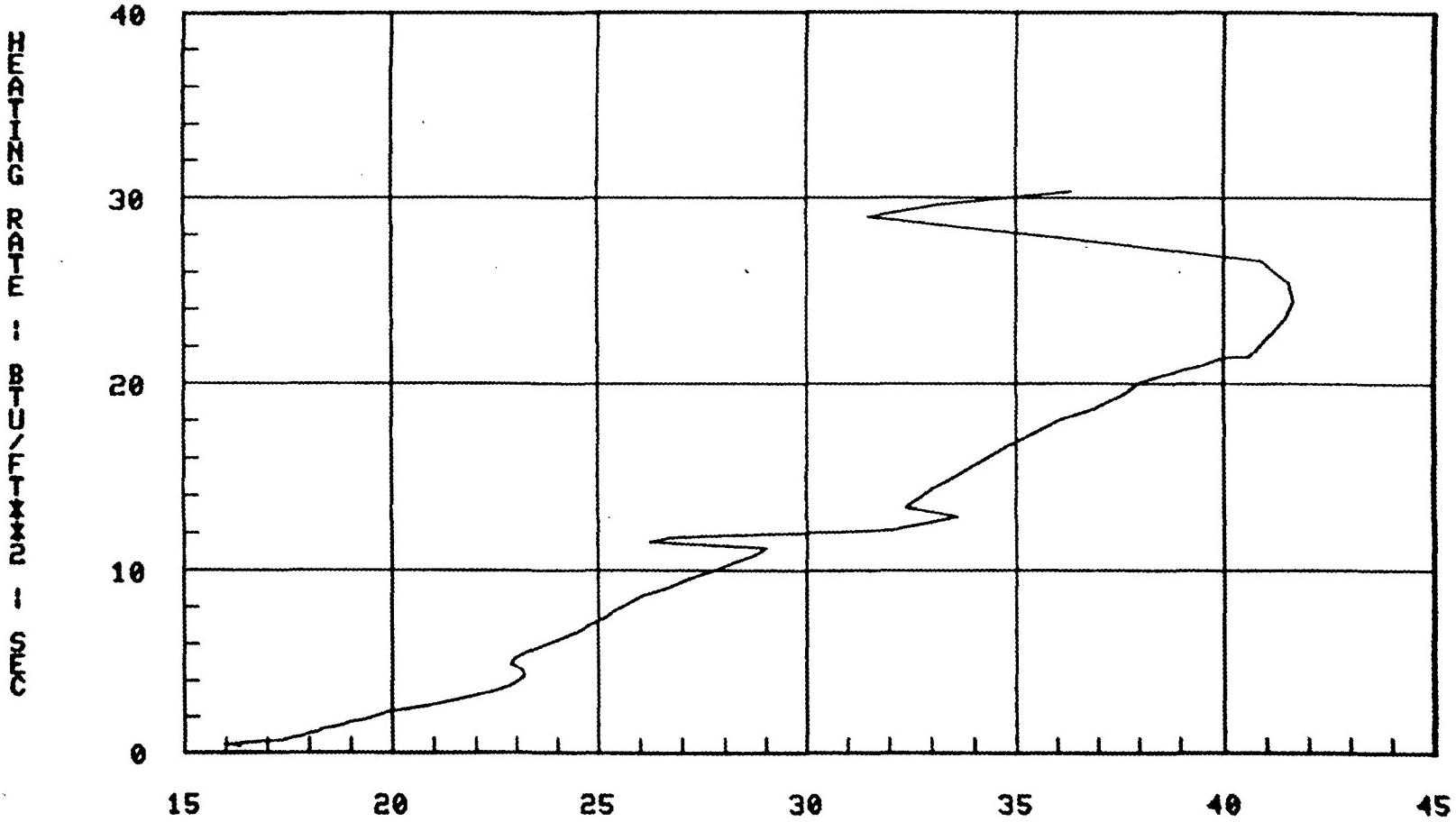
200-1440 SEC



STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

965-1360 SEC



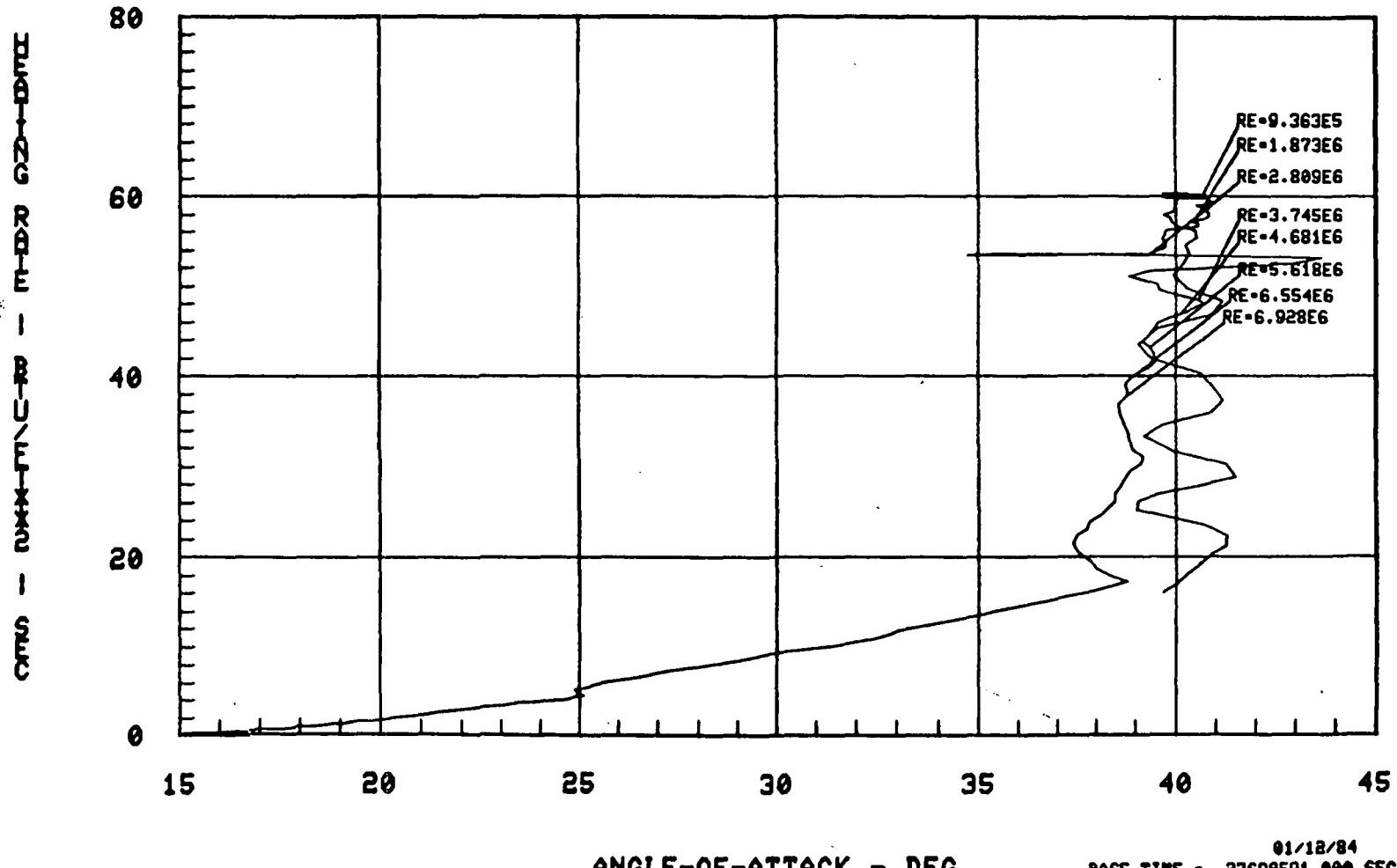
ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME - 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

150-1430 SEC

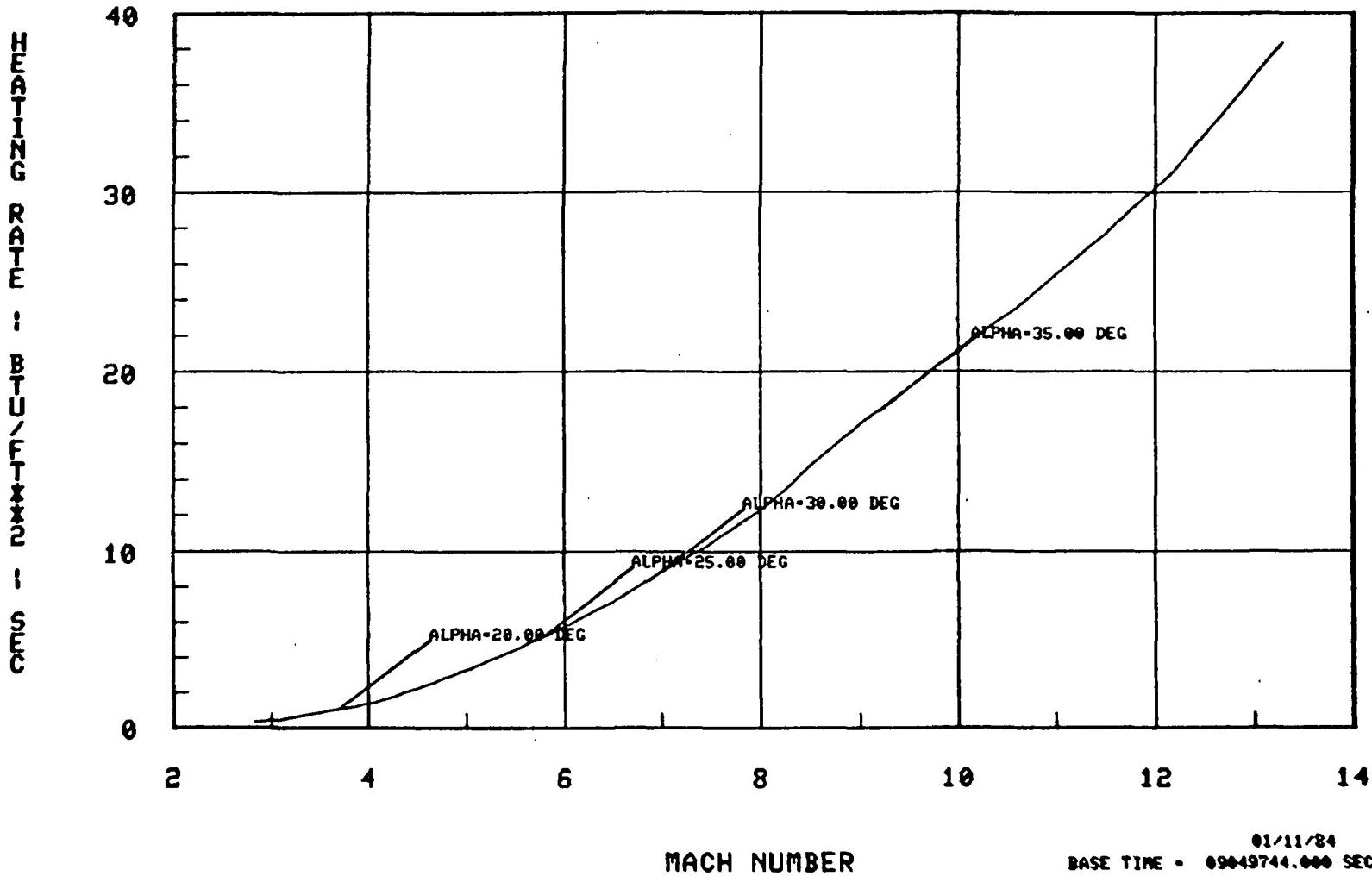


01/12/84
BASE TIME • 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

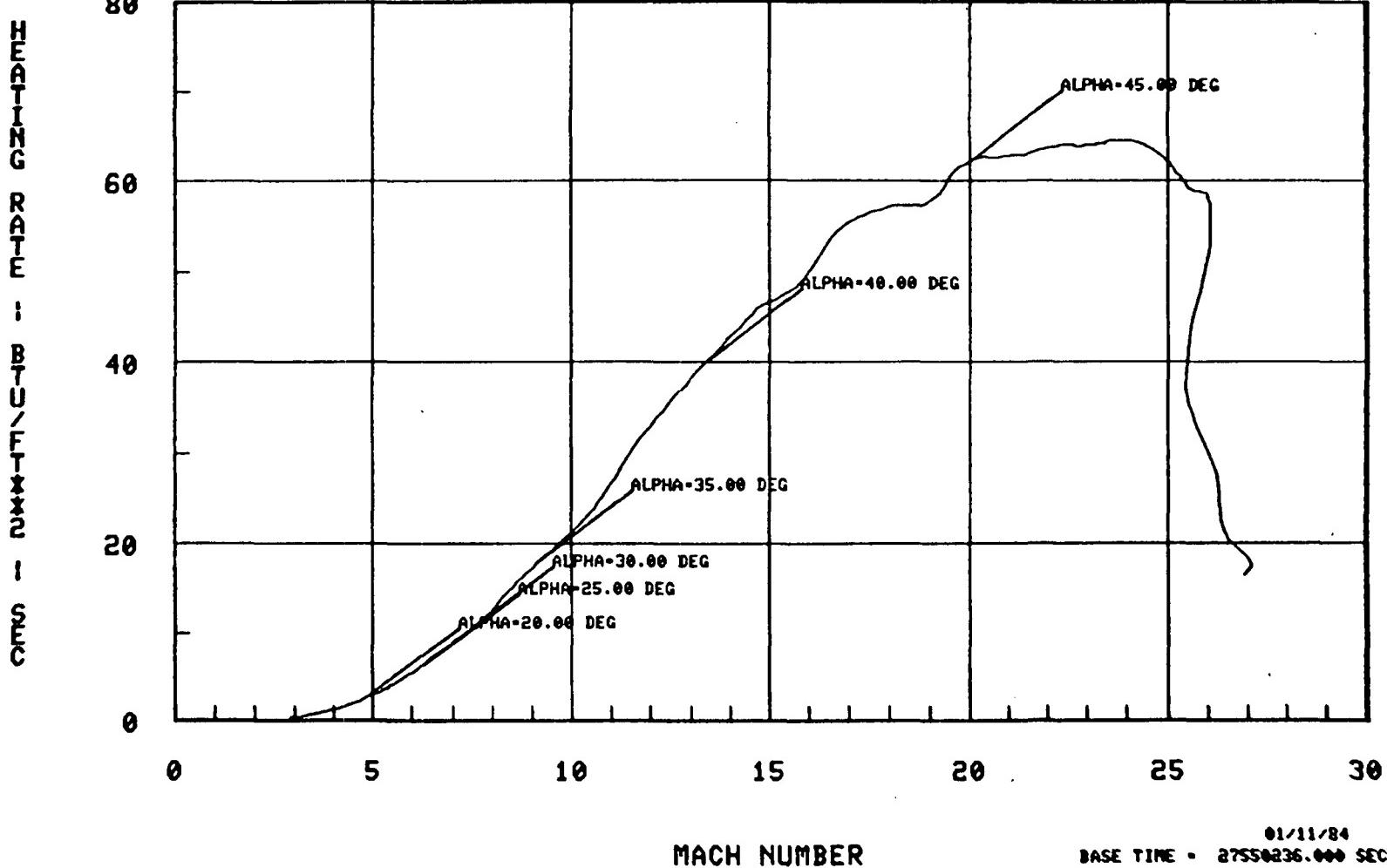
1065-1500 SEC



STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

200-1530 SEC



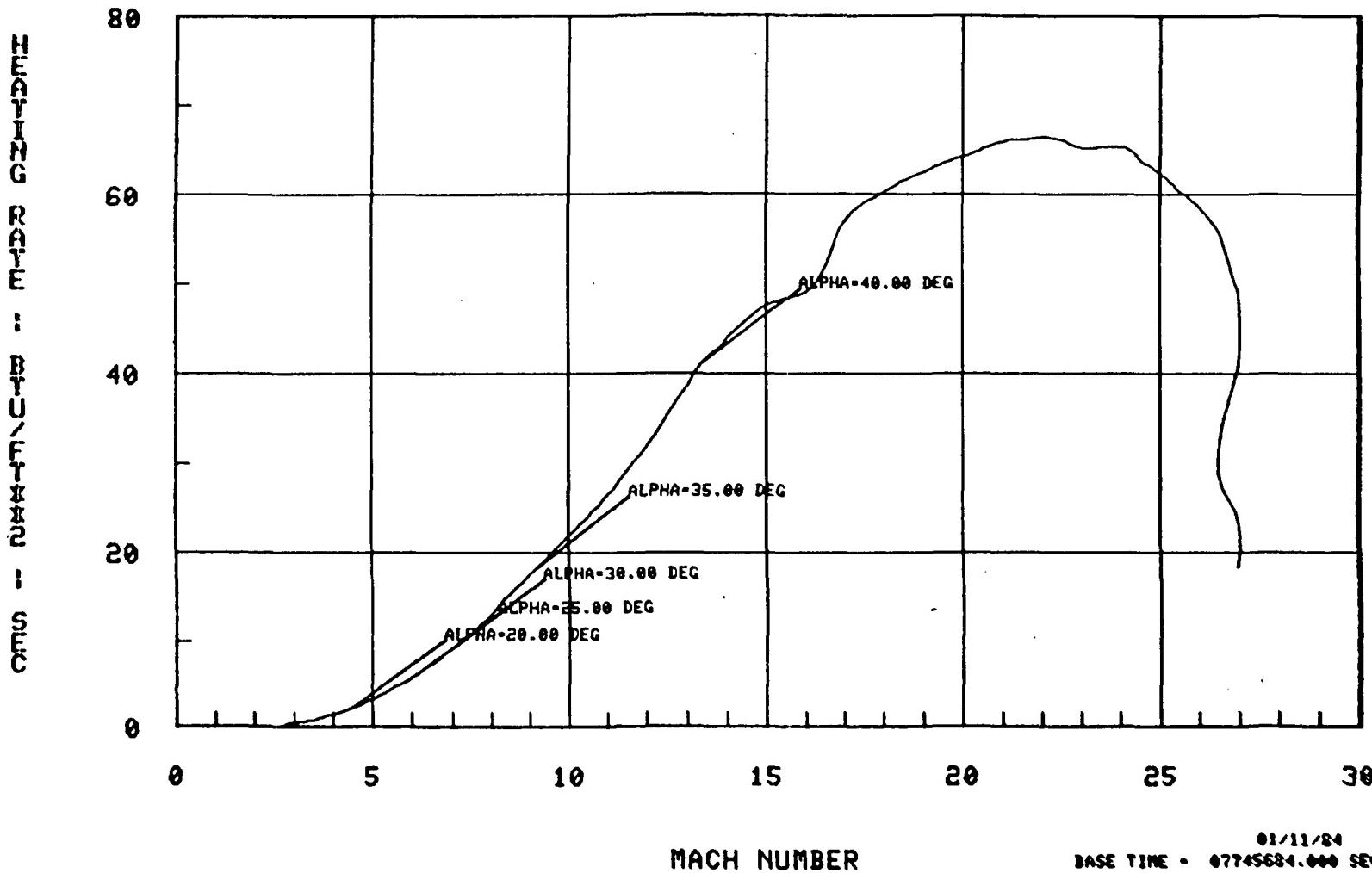
01/11/84

BASE TIME • 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

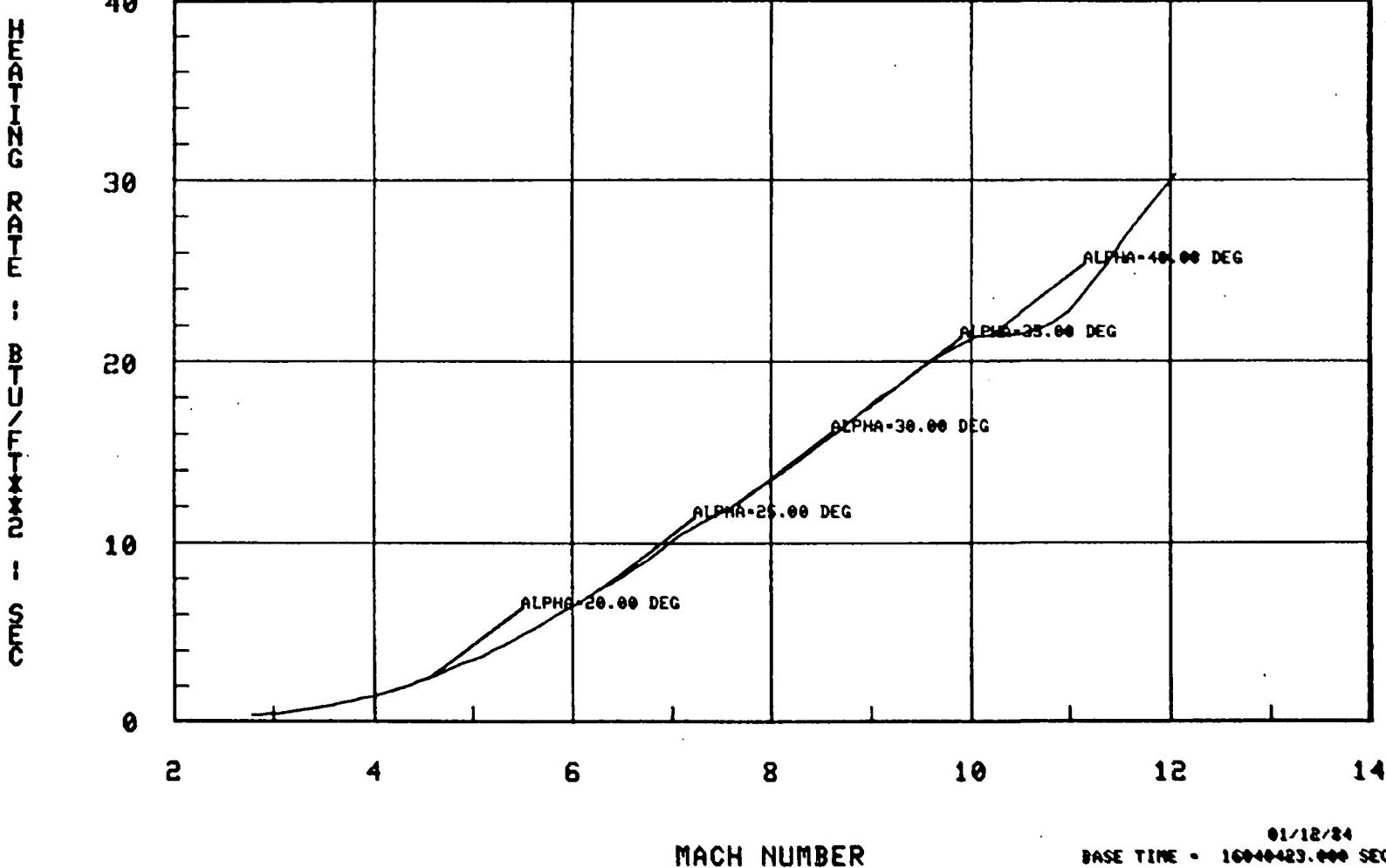
200-1440 SEC



STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

965-1360 SEC

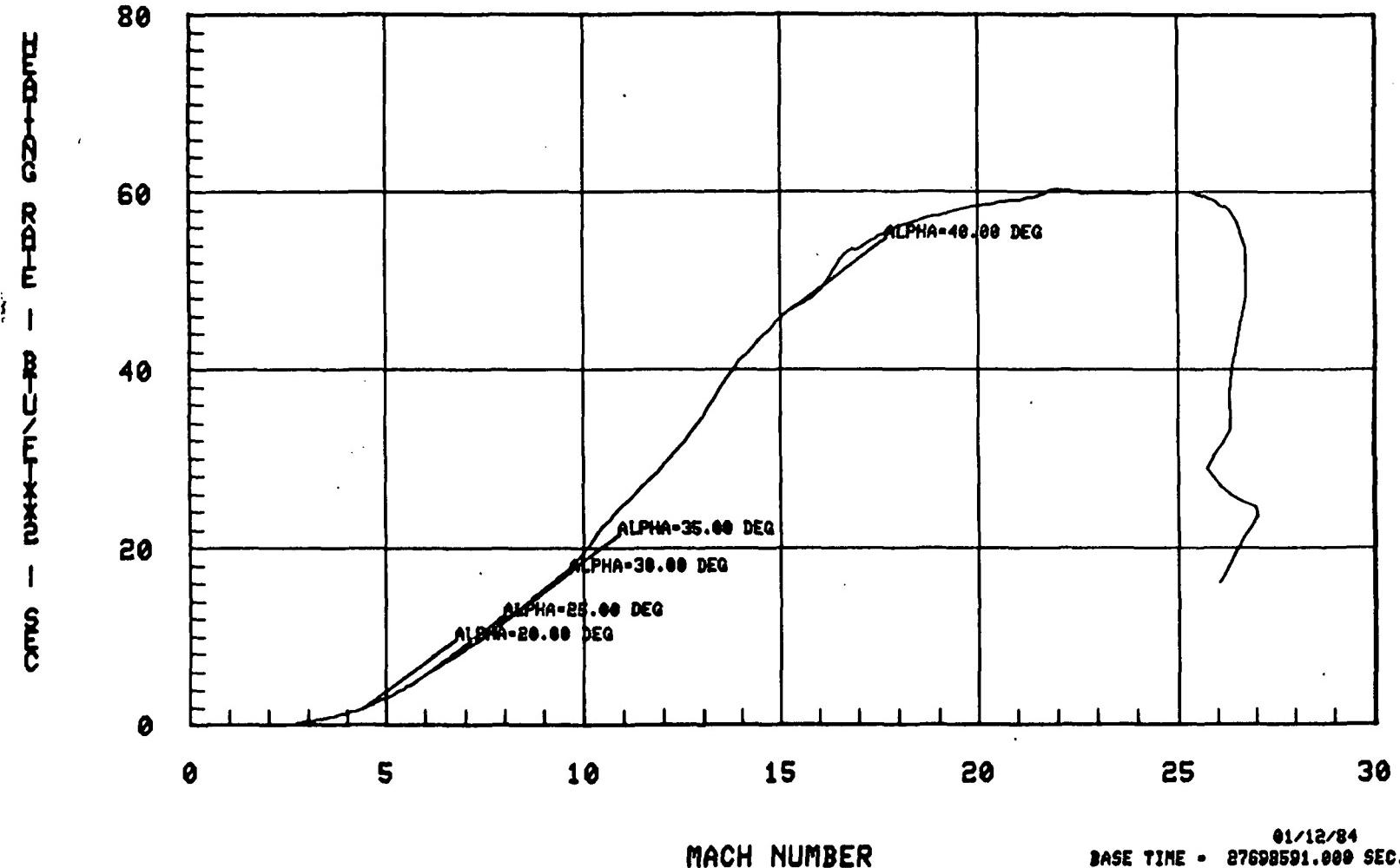


STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

150-1430 SEC

A-40



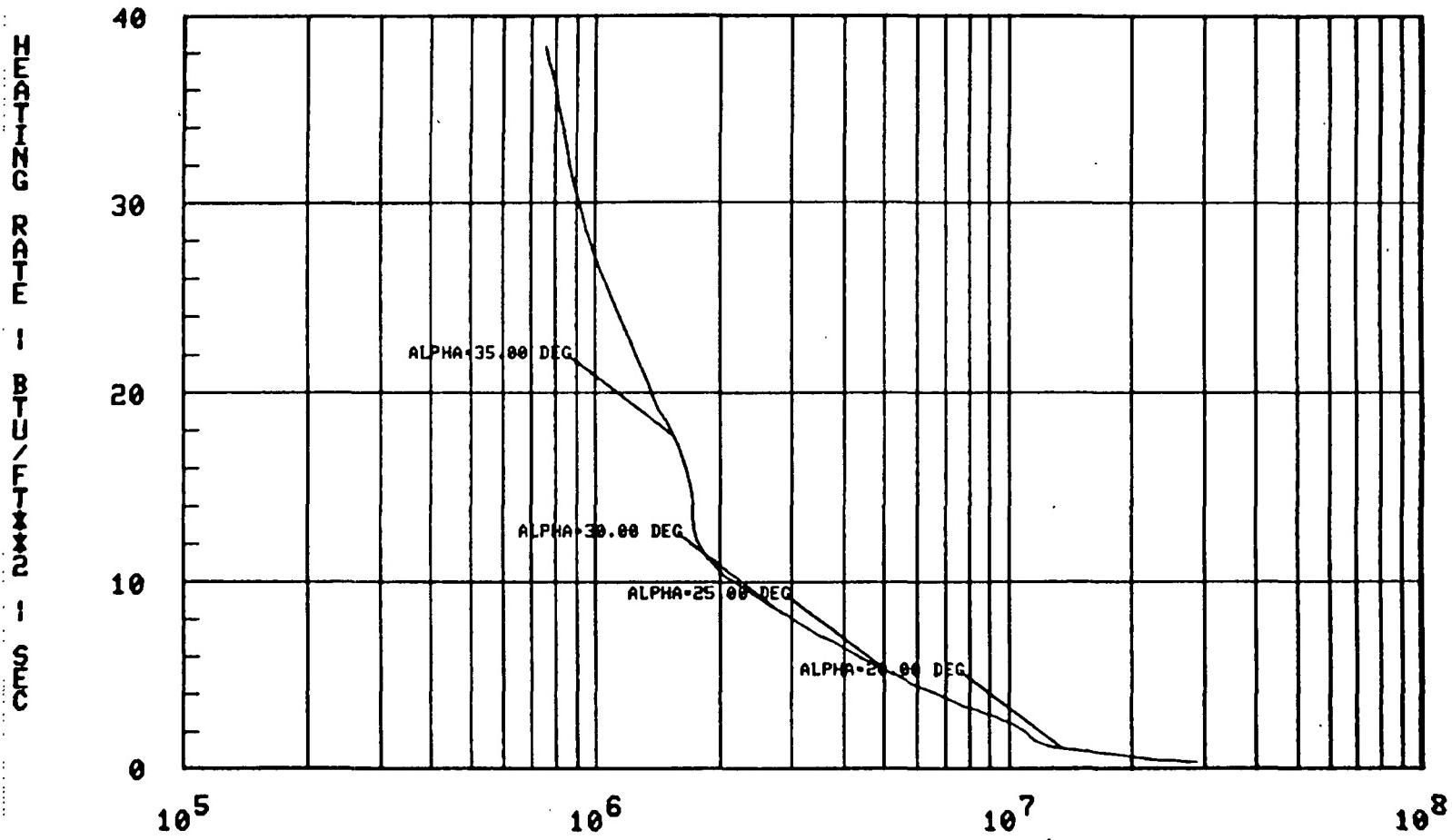
MACH NUMBER

01/12/84
BASE TIME = 87698591.000 SEC.

STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

1065-1500 SEC



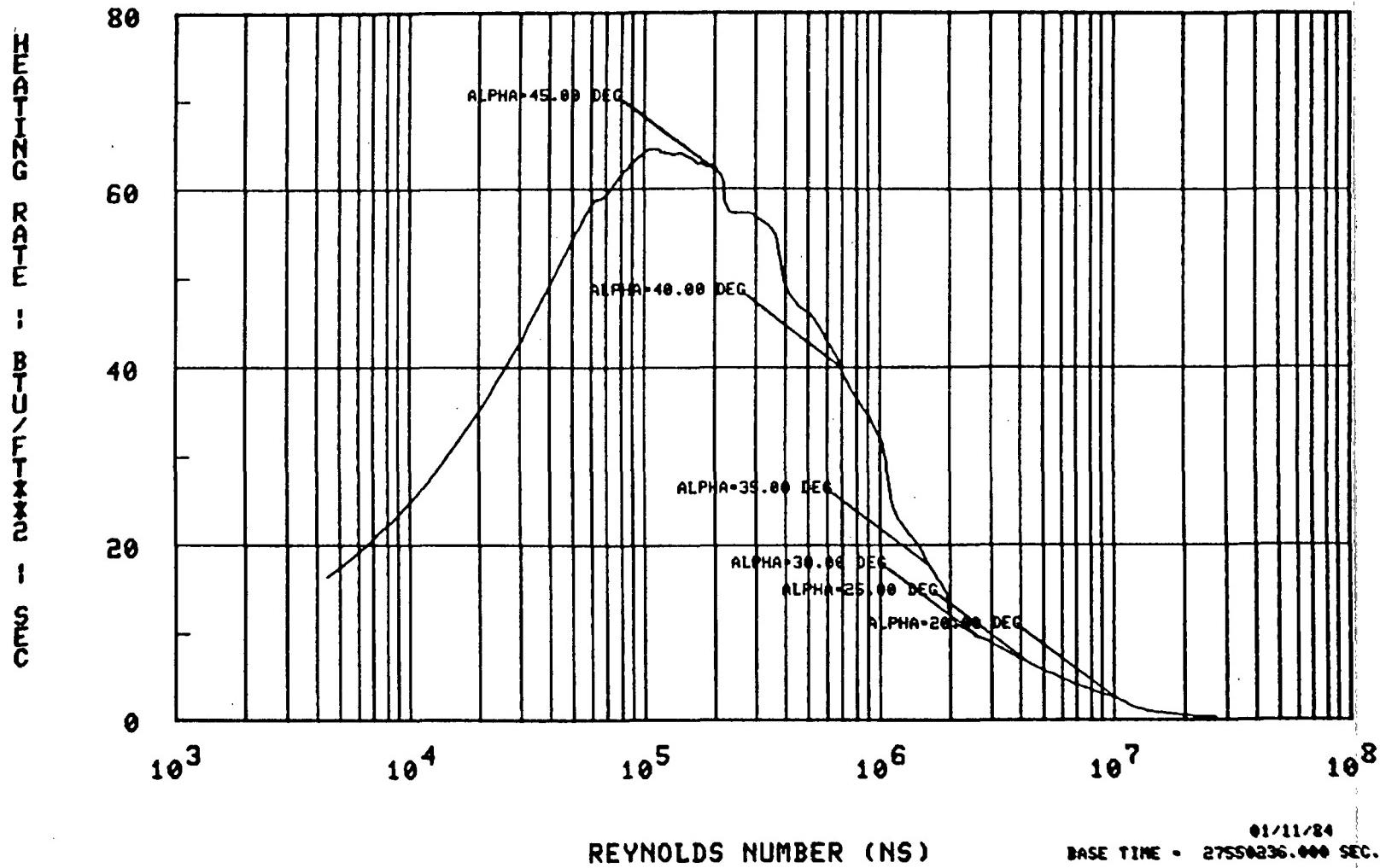
REYNOLDS NUMBER (NS)

01/11/84
BASE TIME • 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

OREF

200-1530 SEC

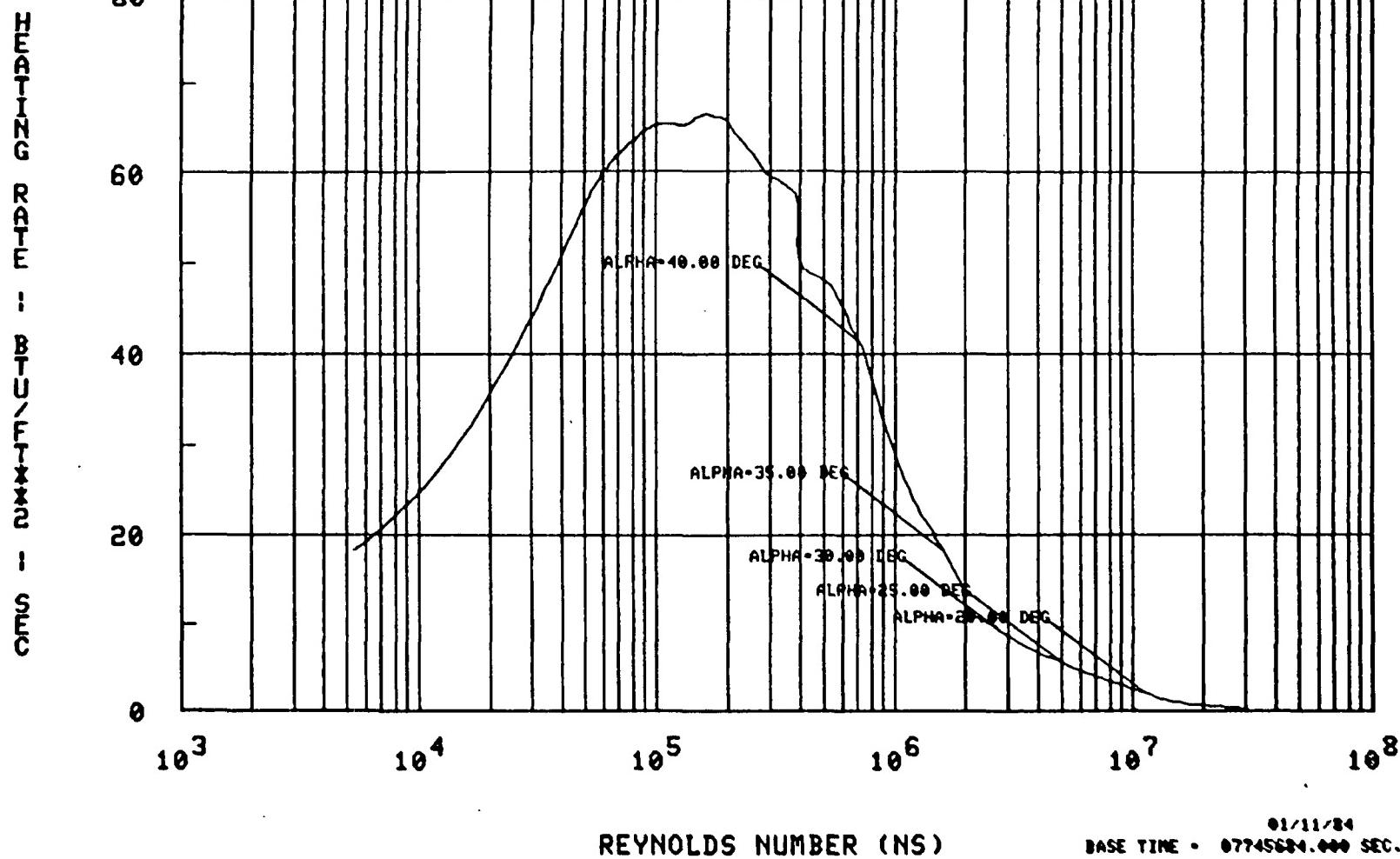


A-42

STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

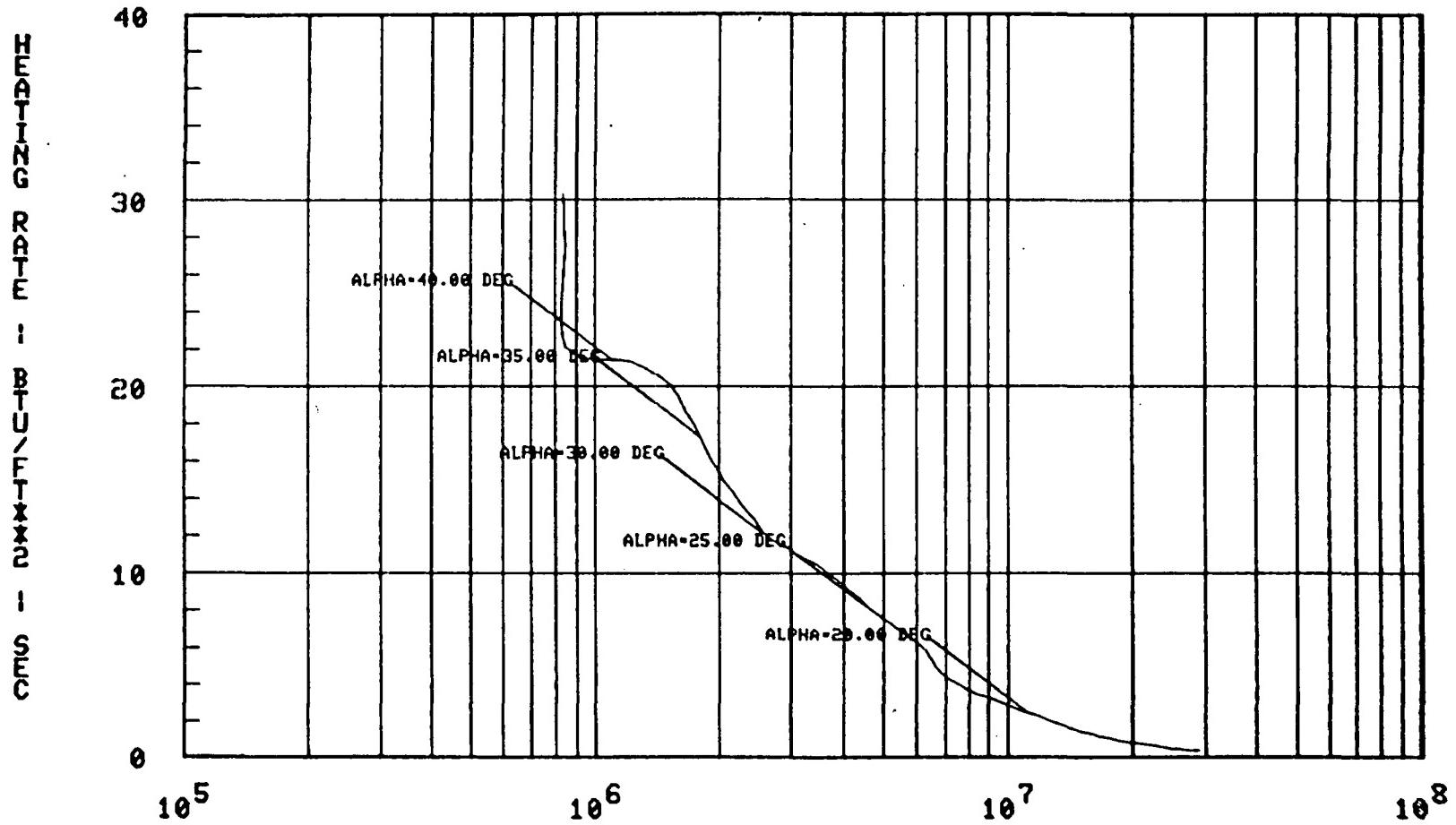
200-1440 SEC



STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

REF

965-1360 SEC



REYNOLDS NUMBER (NS)

01/18/84
BASE TIME • 16440423.000 SEC.

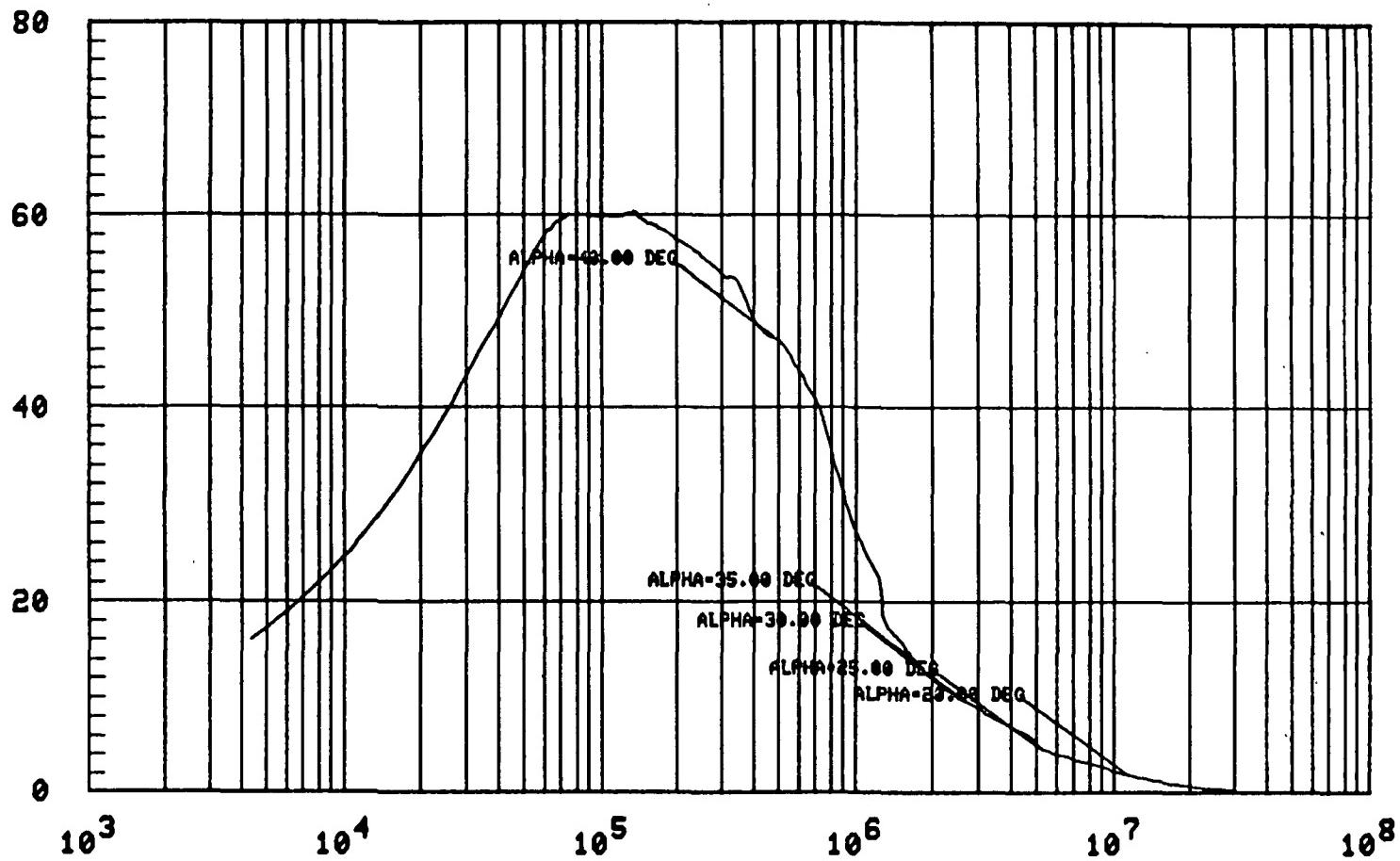
STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF

150-1430 SEC

A-45

DRAG - CDG RATE - RUE / FFFXXN - SFC



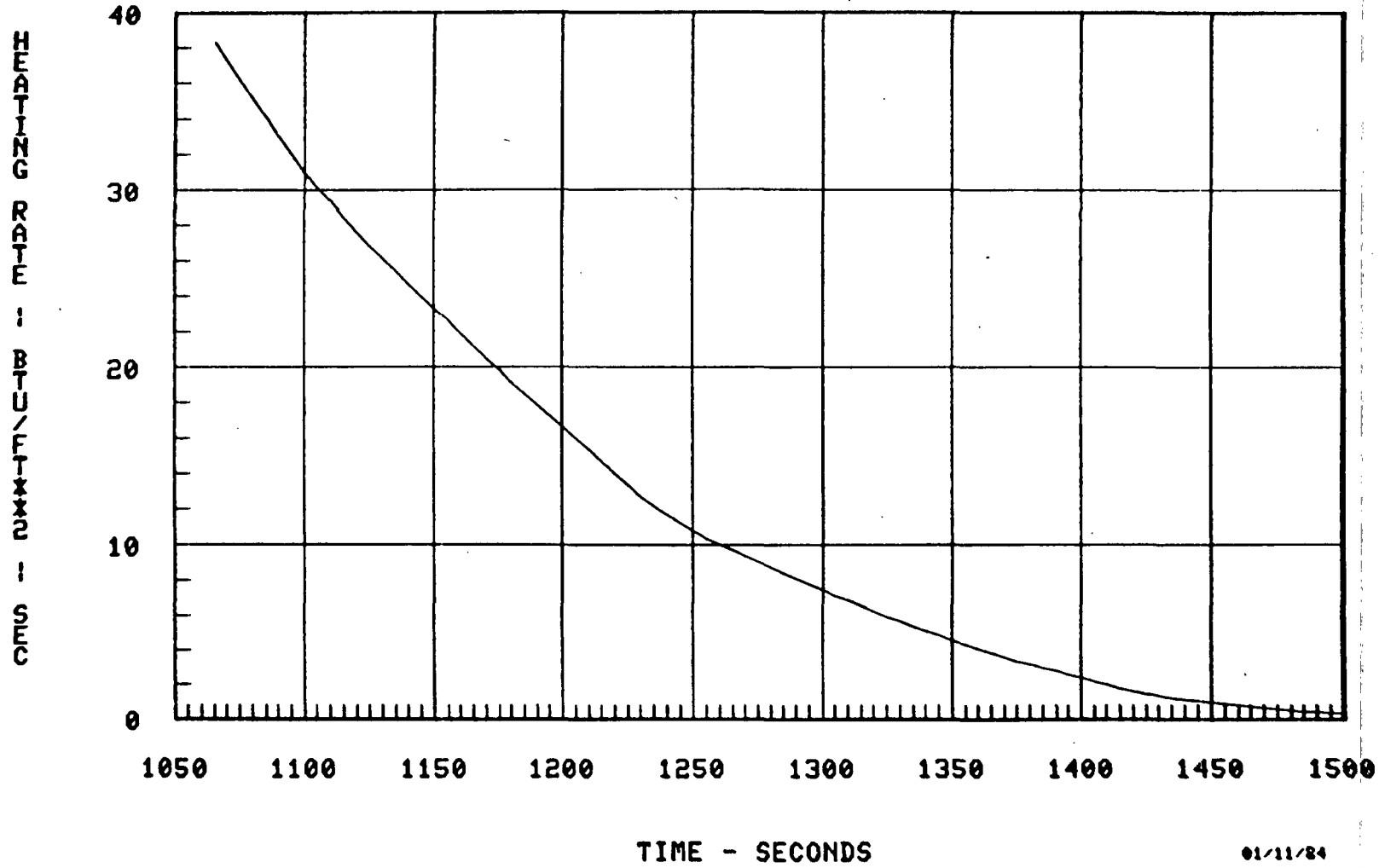
REYNOLDS NUMBER (NS)

01/18/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

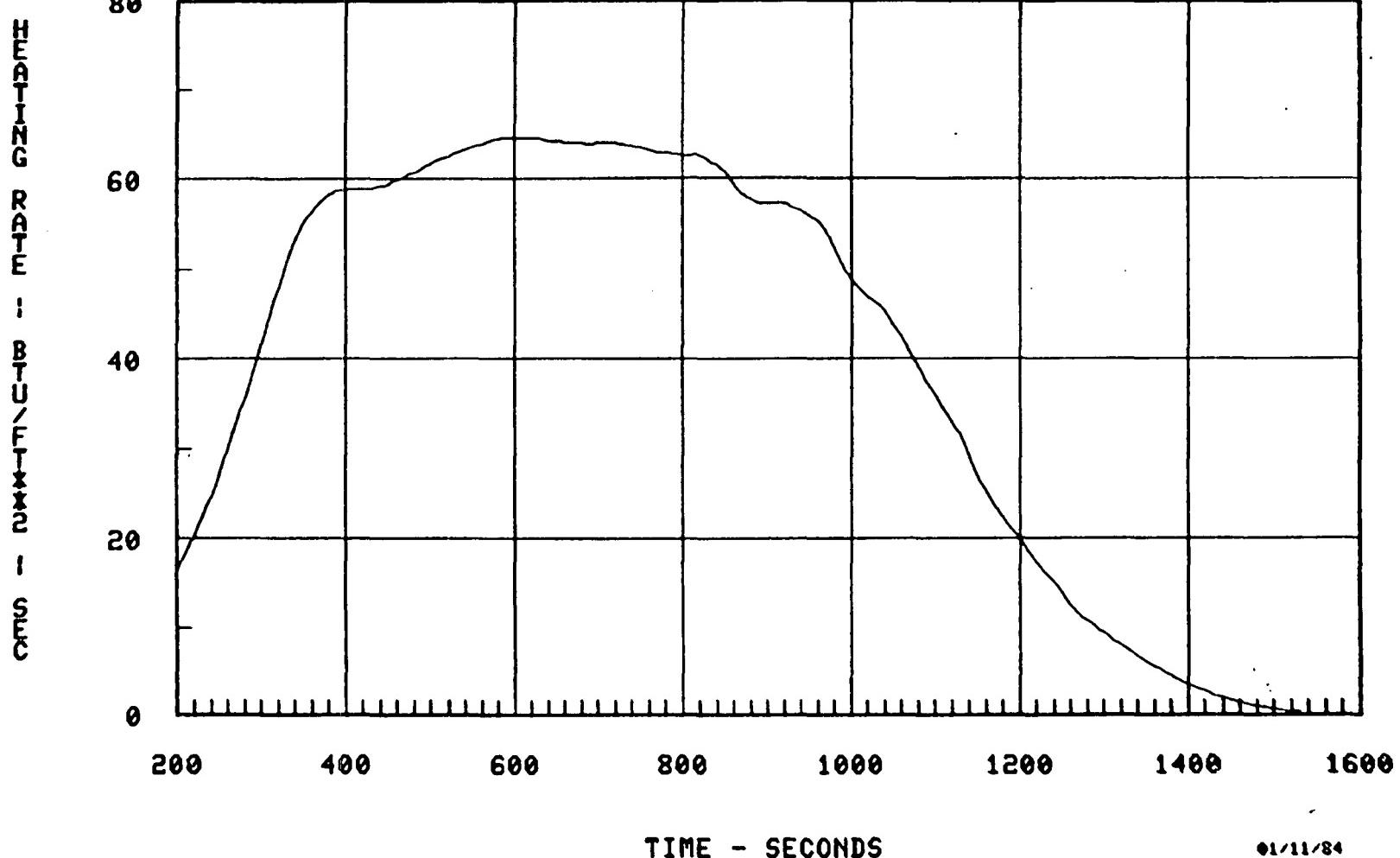
QREF

A-46



STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

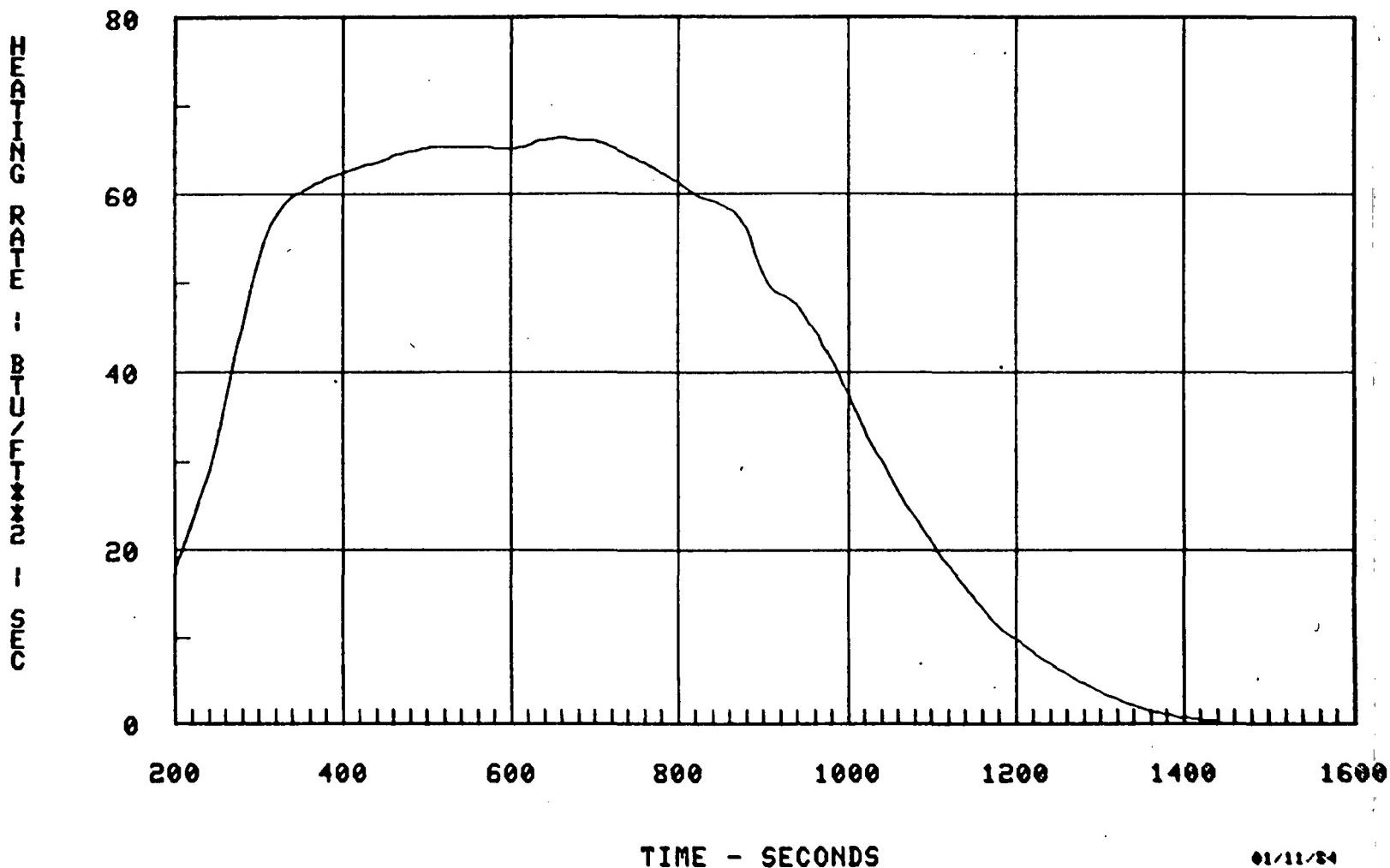
QREF



01/11/84

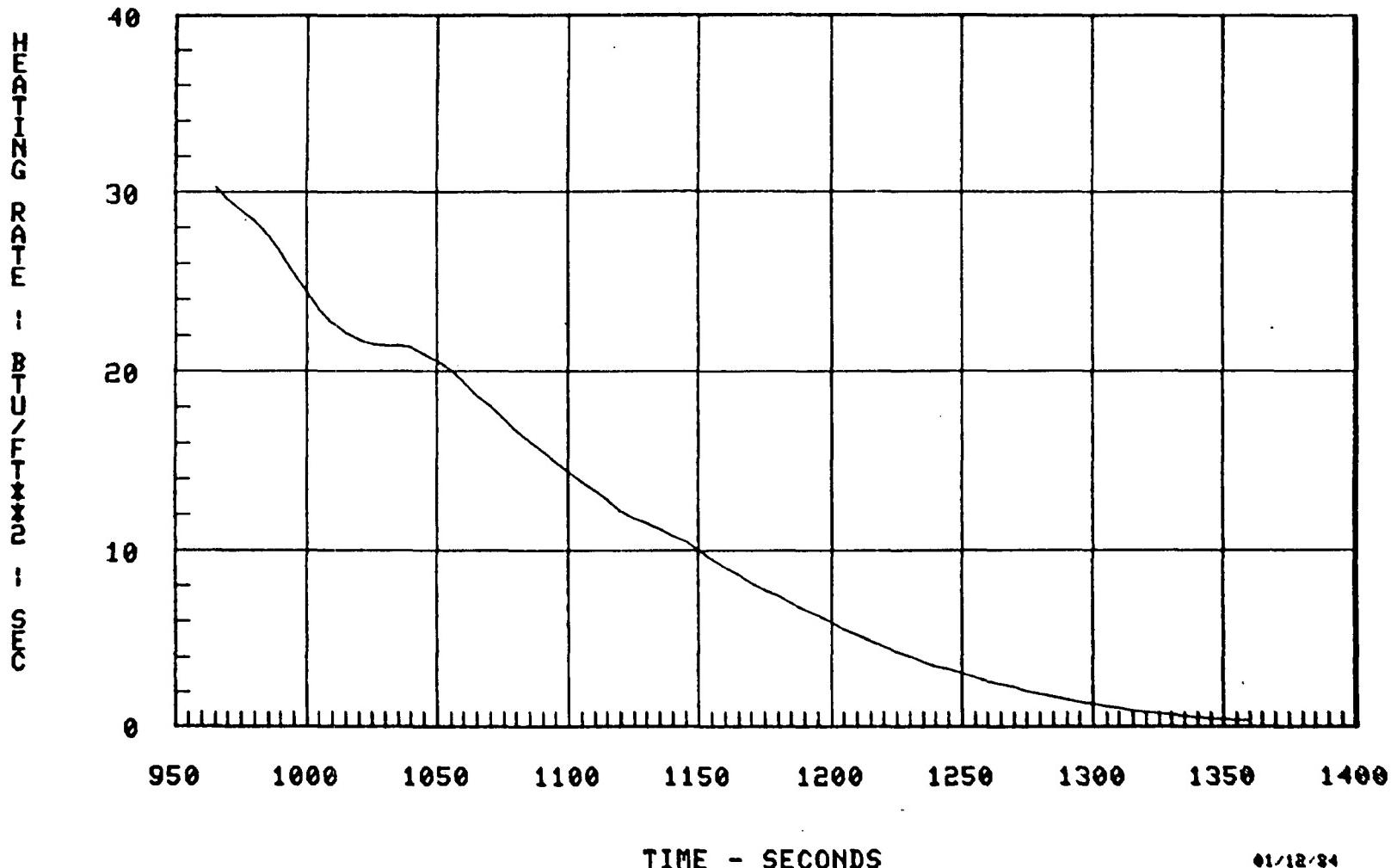
STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

— OREF



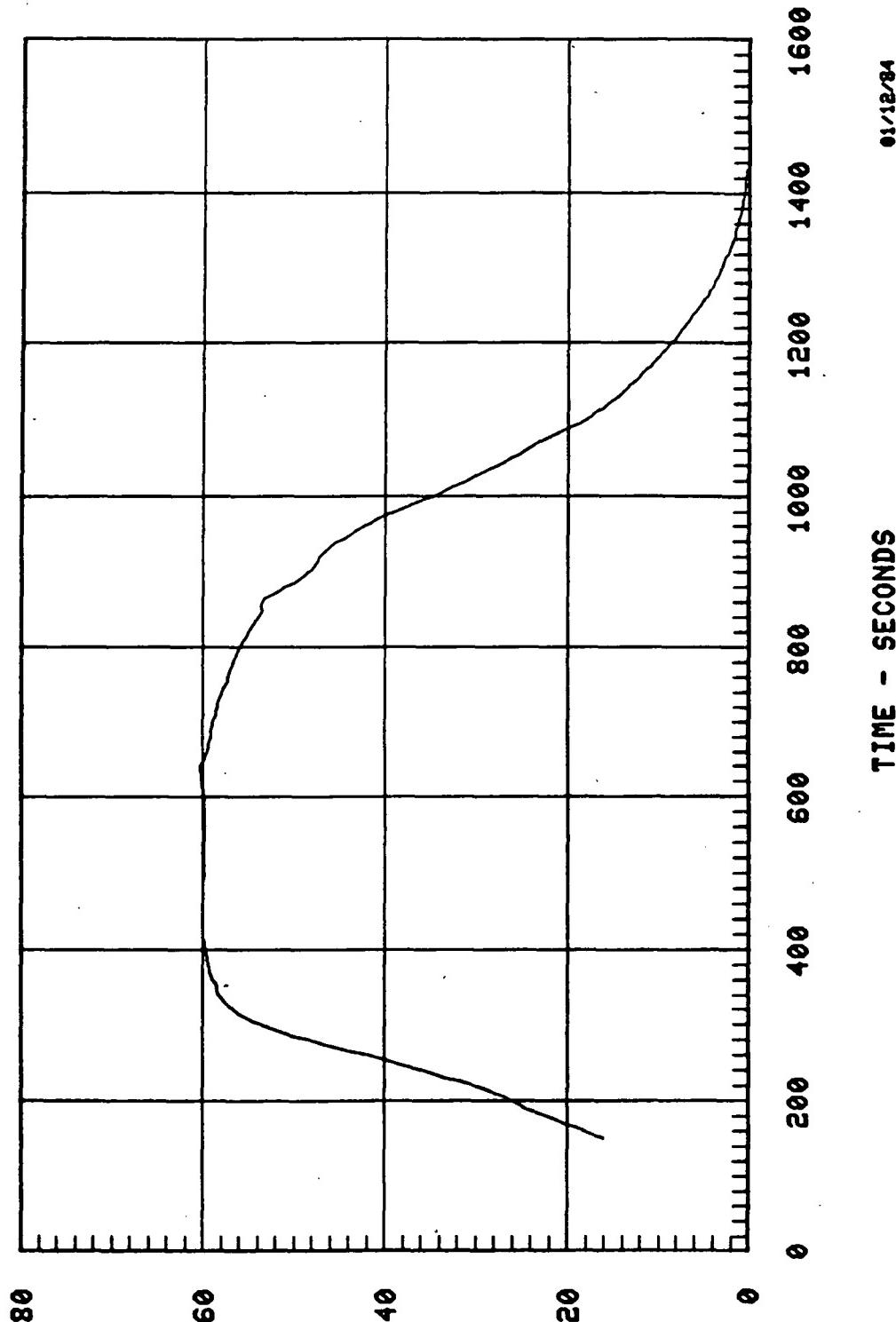
STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

QREF



STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

REF

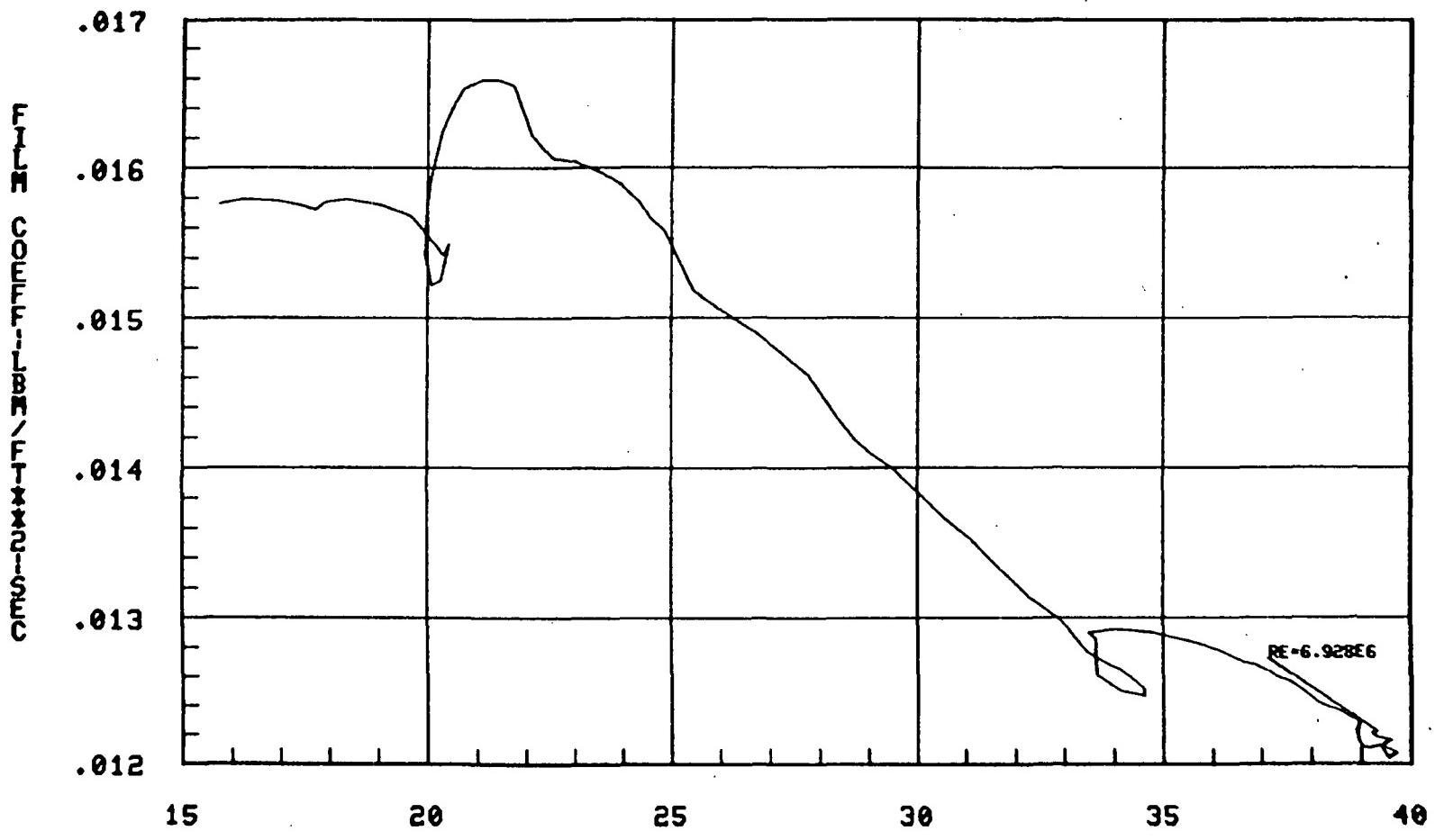


INERTIAL GYRO - ACCELEROMETER - SWING

STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

1065-1500 SEC



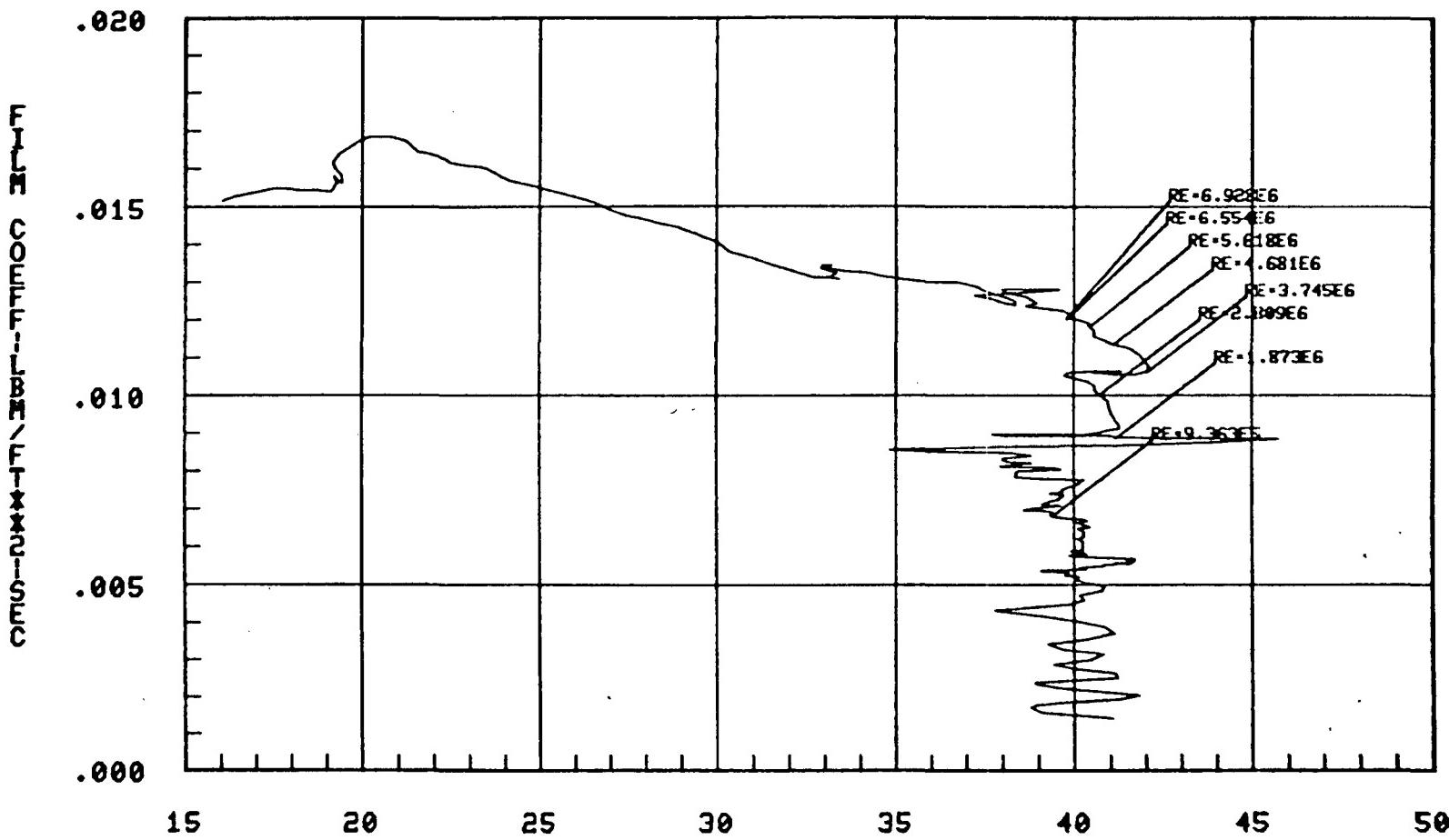
01/11/84
ANGLE-OF-ATTACK - DEG

09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

200-1530 SEC



A-52

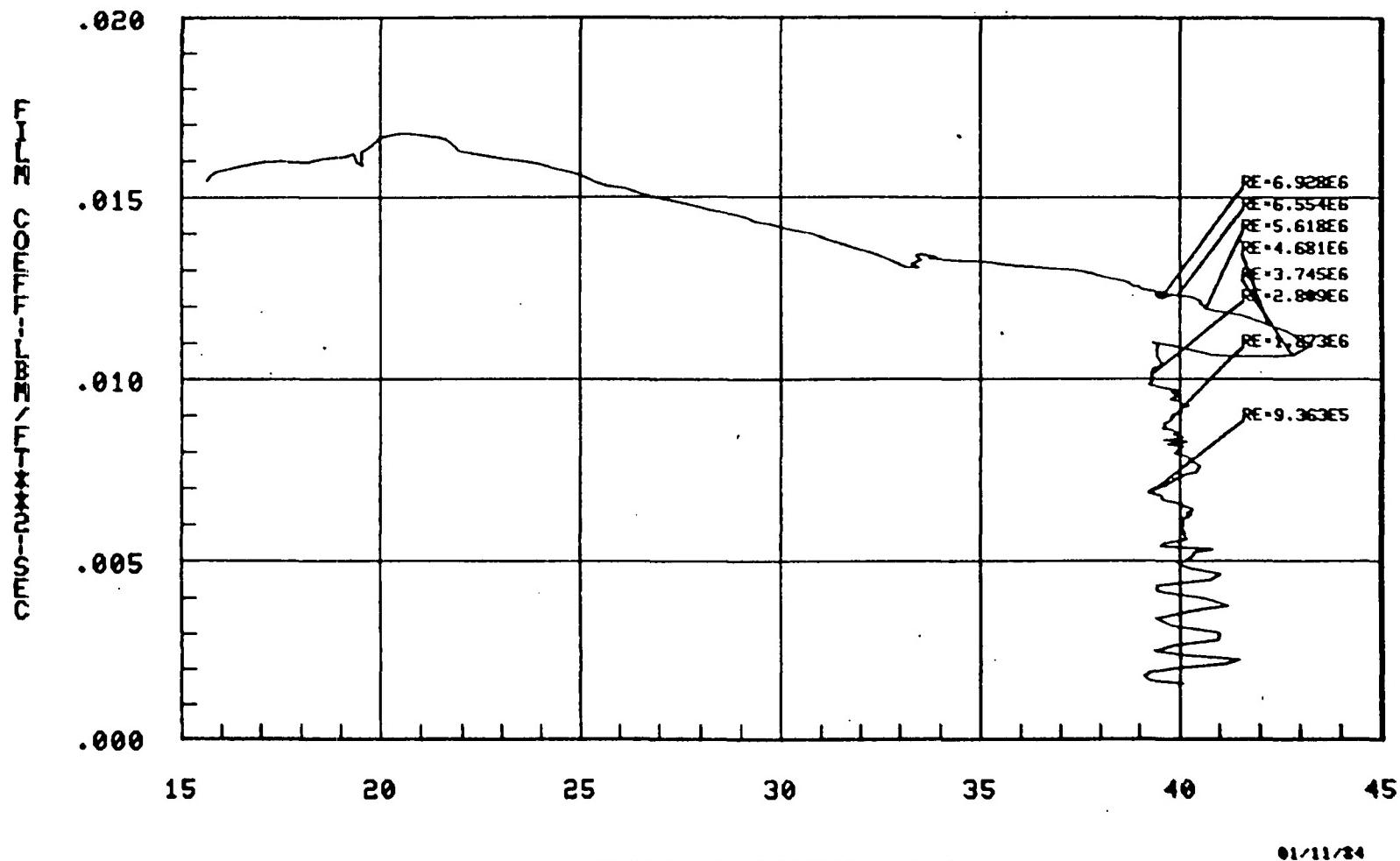
ANGLE-OF-ATTACK - DEG

01/11/84
BASE TIME • 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

200-1440 SEC



A-53

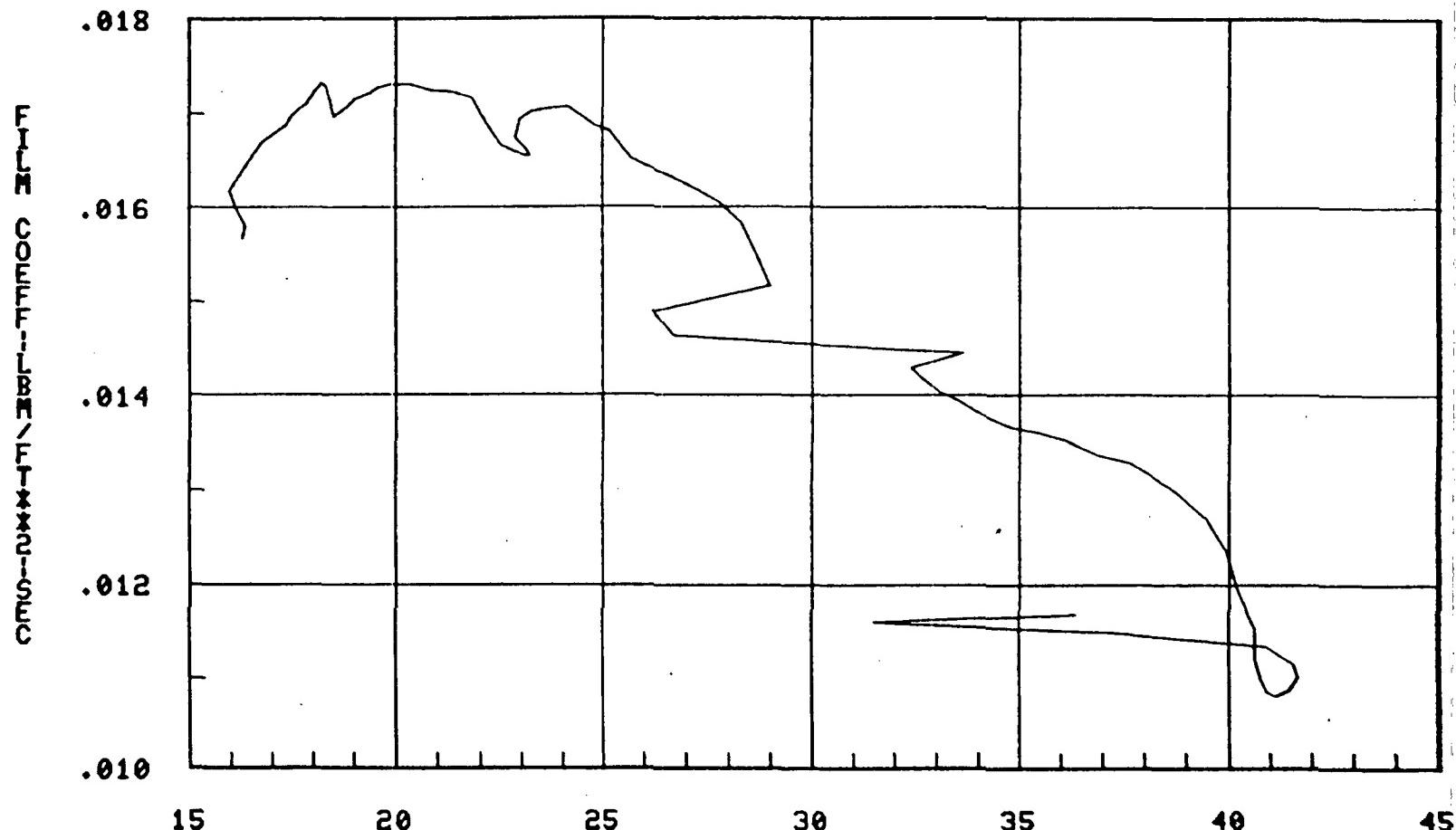
01/11/84
ANGLE-OF-ATTACK - DEG

BASE TIME • 07745634.000 SEC.

STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

965~1360 SEC

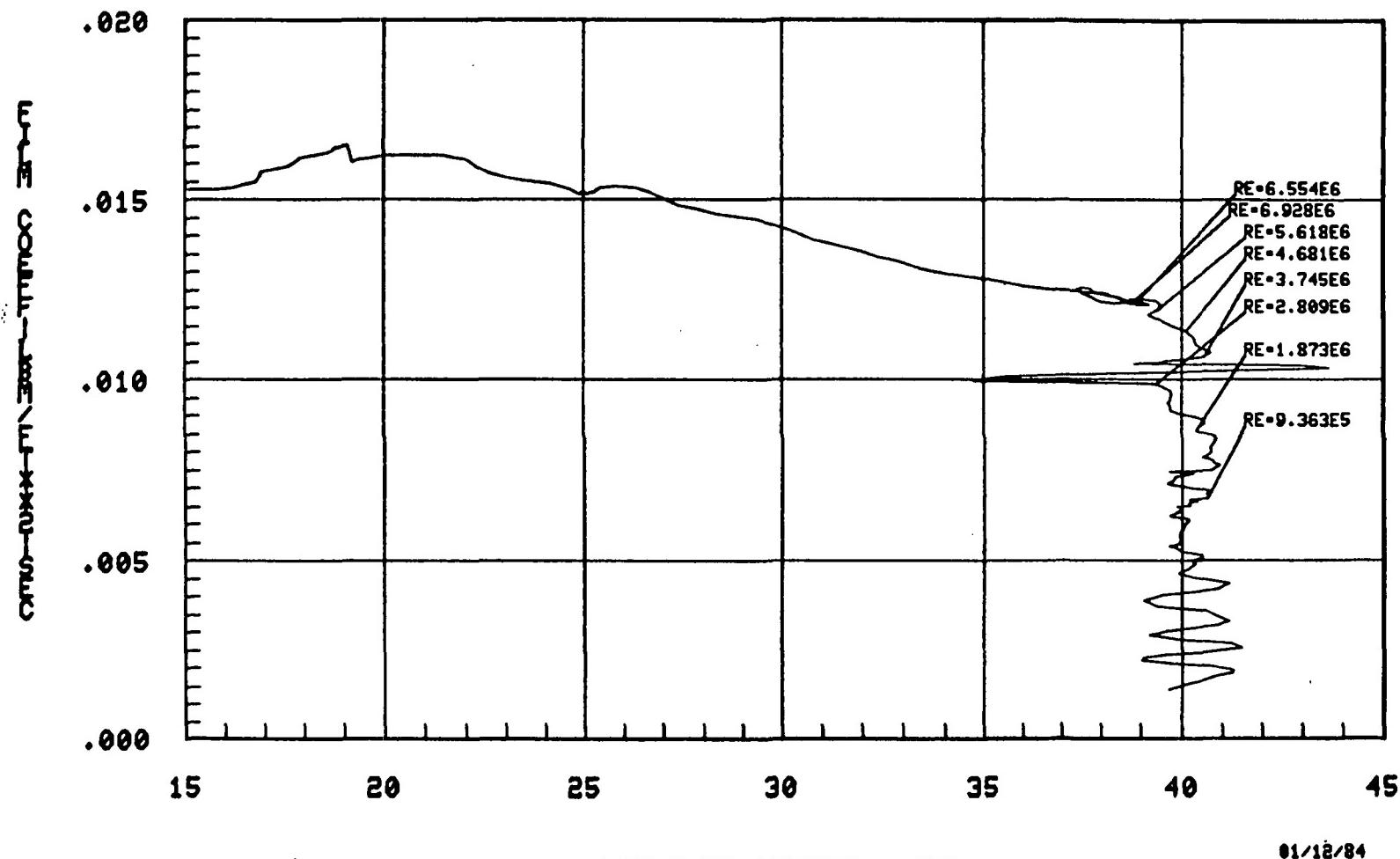


01/12/84
BASE TIME = 16046423.000 SEC.

STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

150-1430 SEC

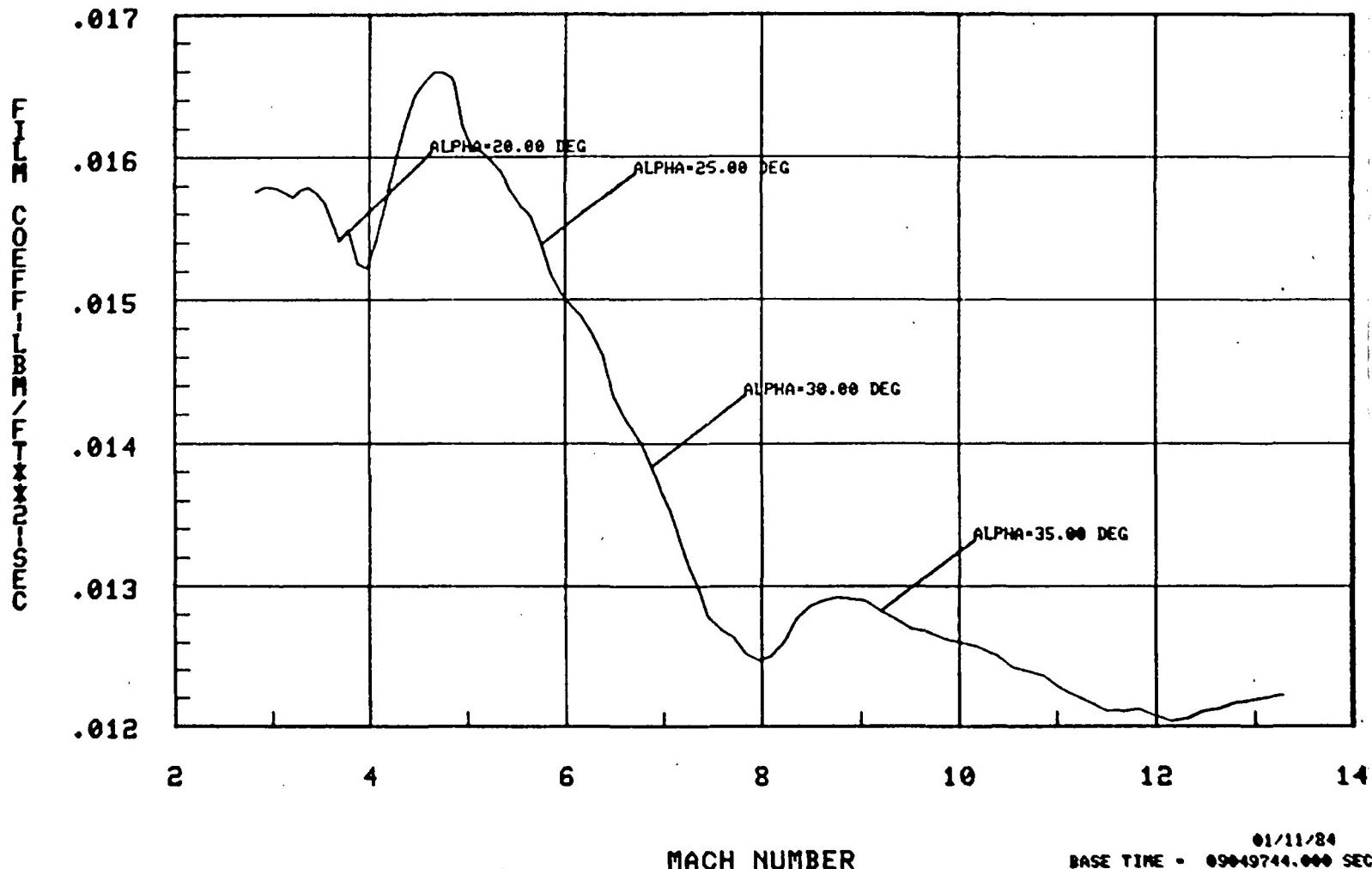


STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

1065-1500 SEC

A-56



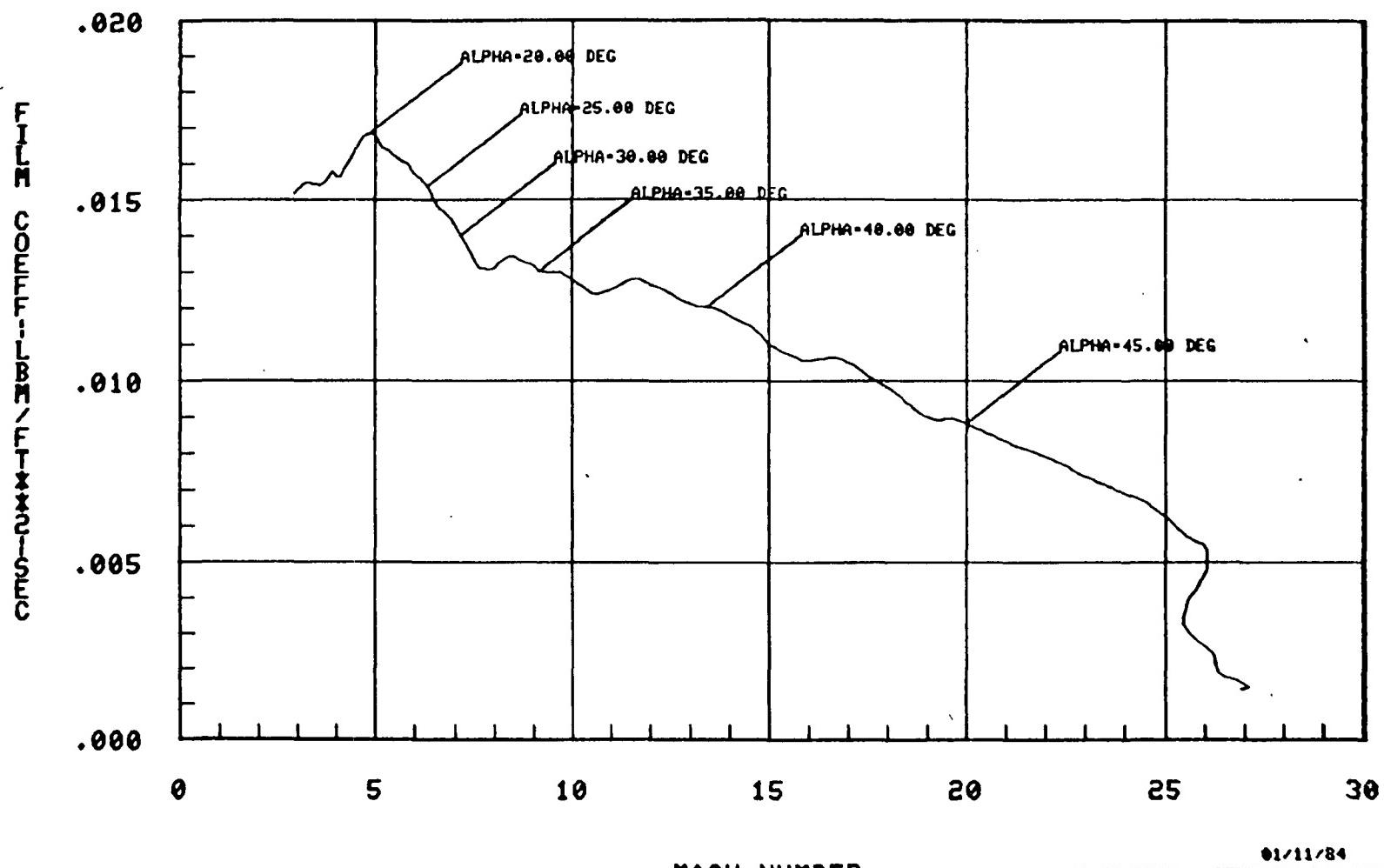
MACH NUMBER

01/11/84
BASE TIME • 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

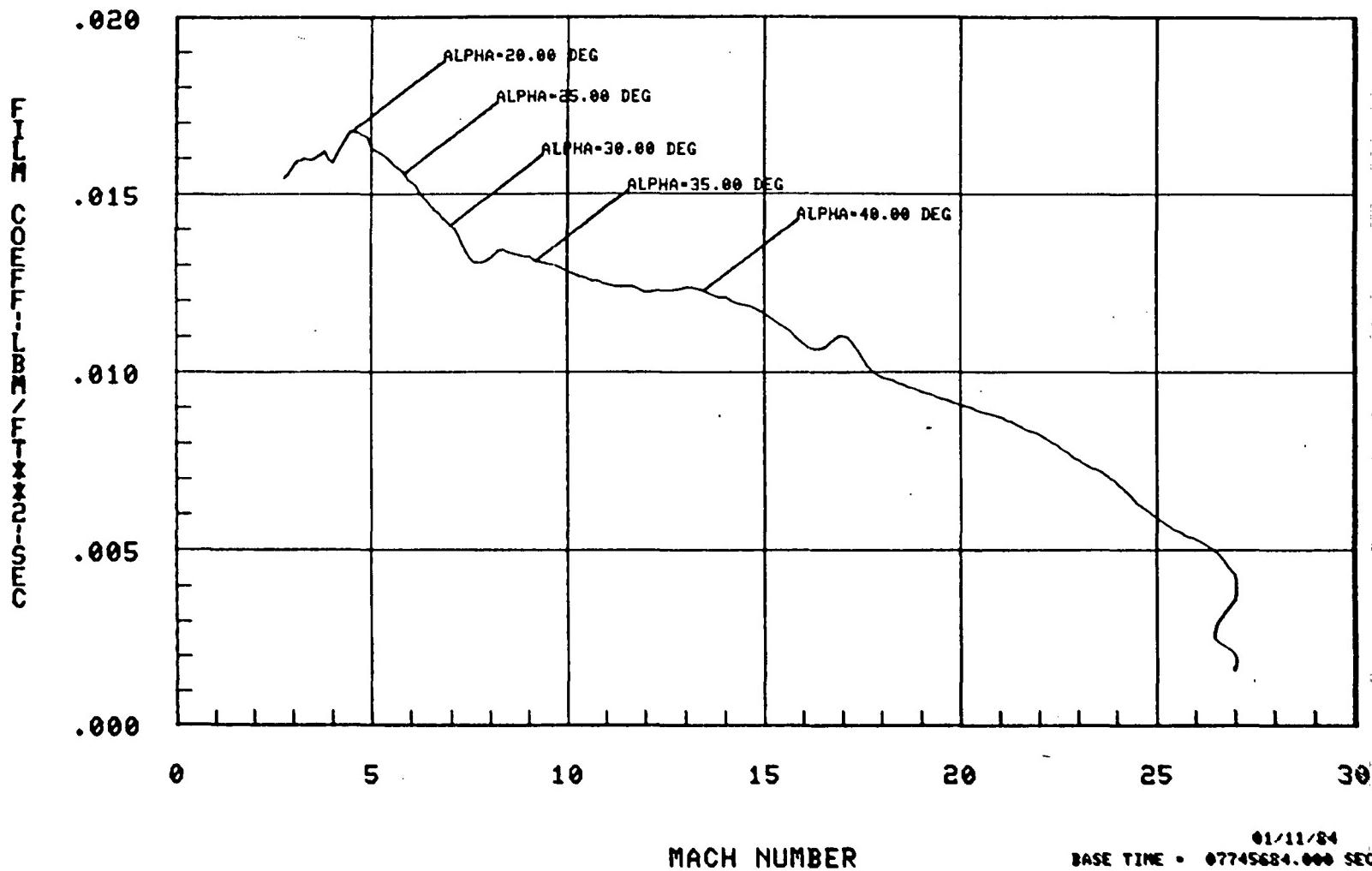
200-1530 SEC



STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

200-1440 SEC

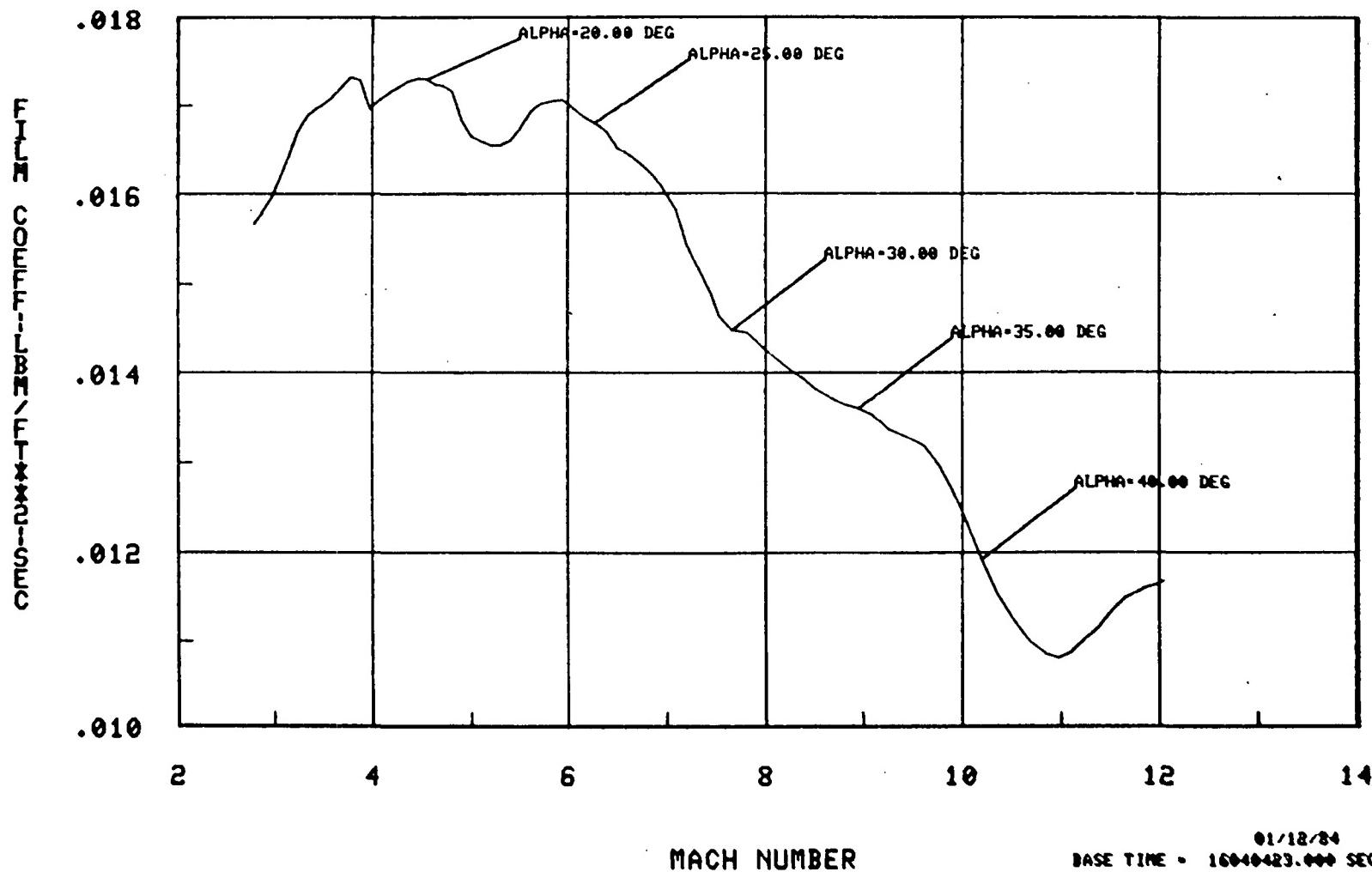


01/11/84
BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

965-1360 SEC



01/18/84

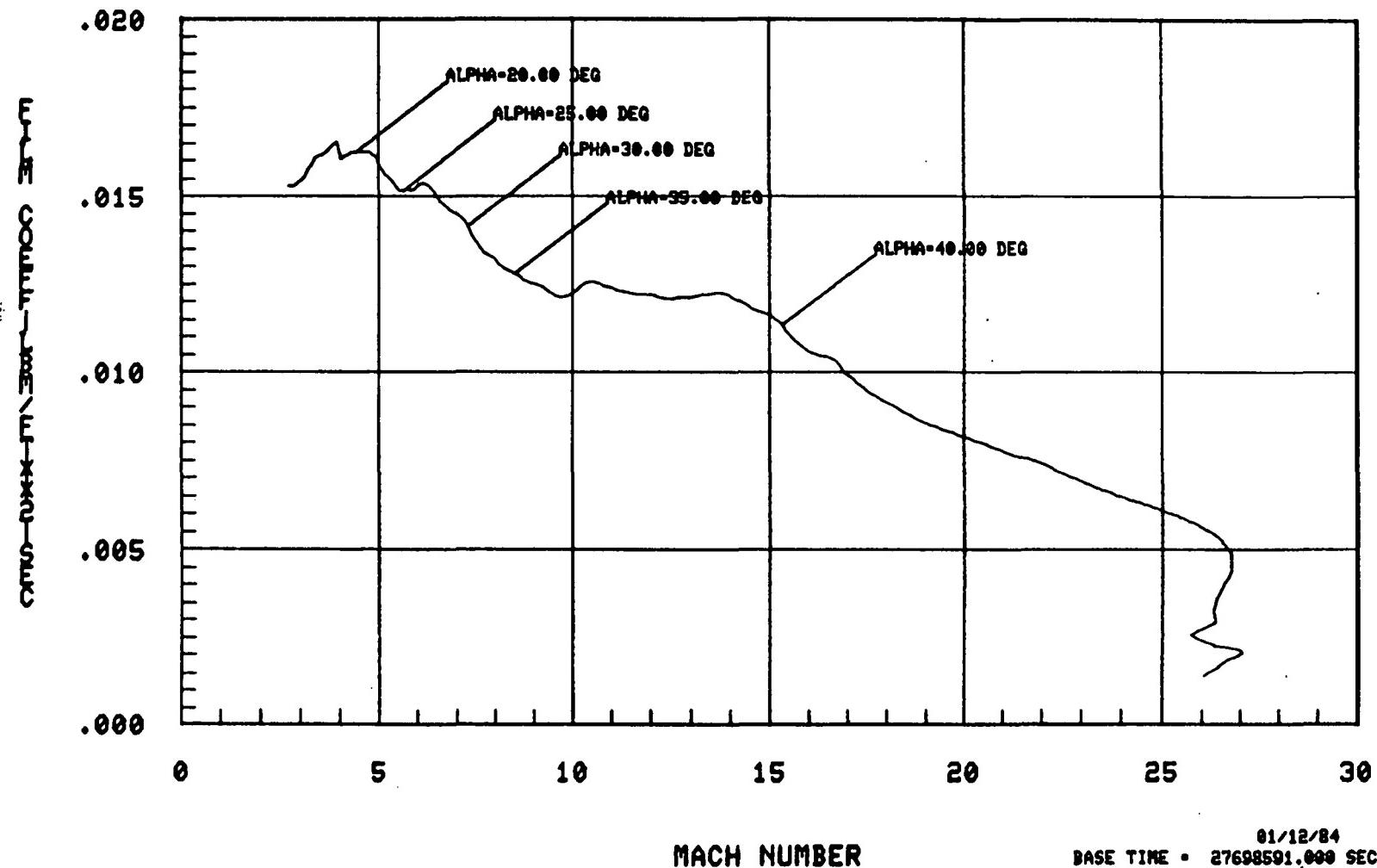
BASE TIME • 16040429.000 SEC.

STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

150-1430 SEC

A-60

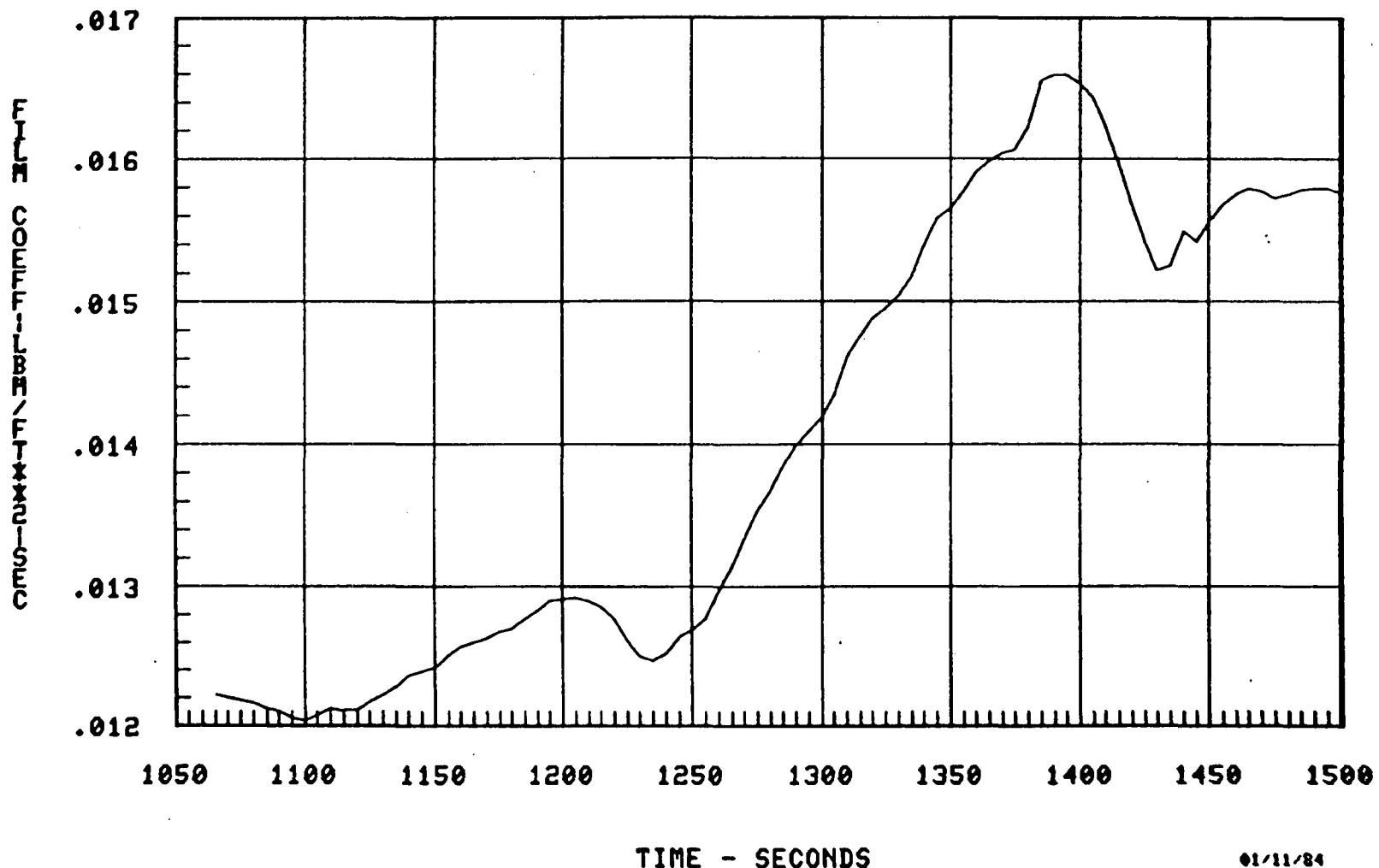


MACH NUMBER

01/12/84
BASE TIME • 27698591.000 SEC.

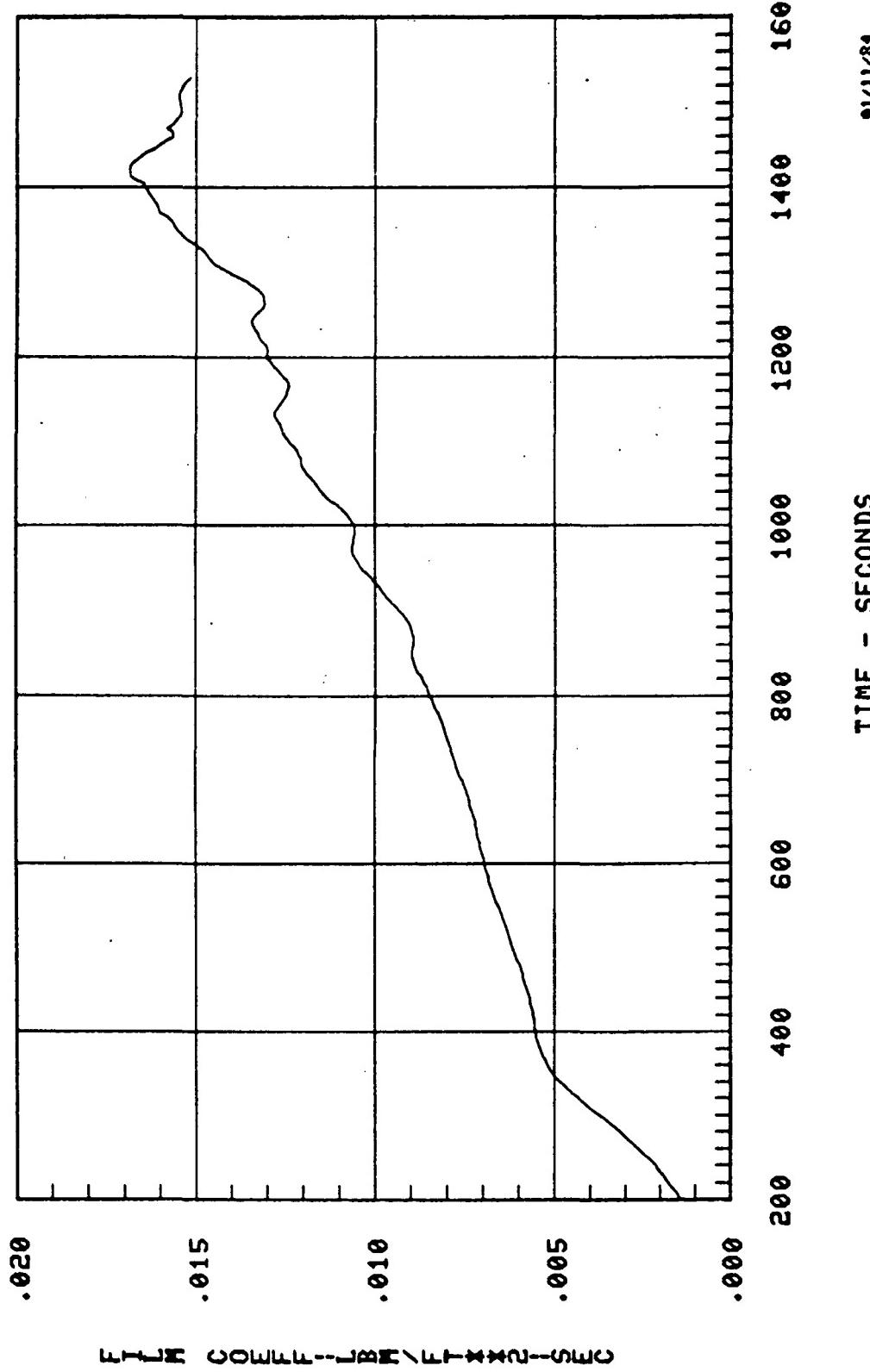
STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF



STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

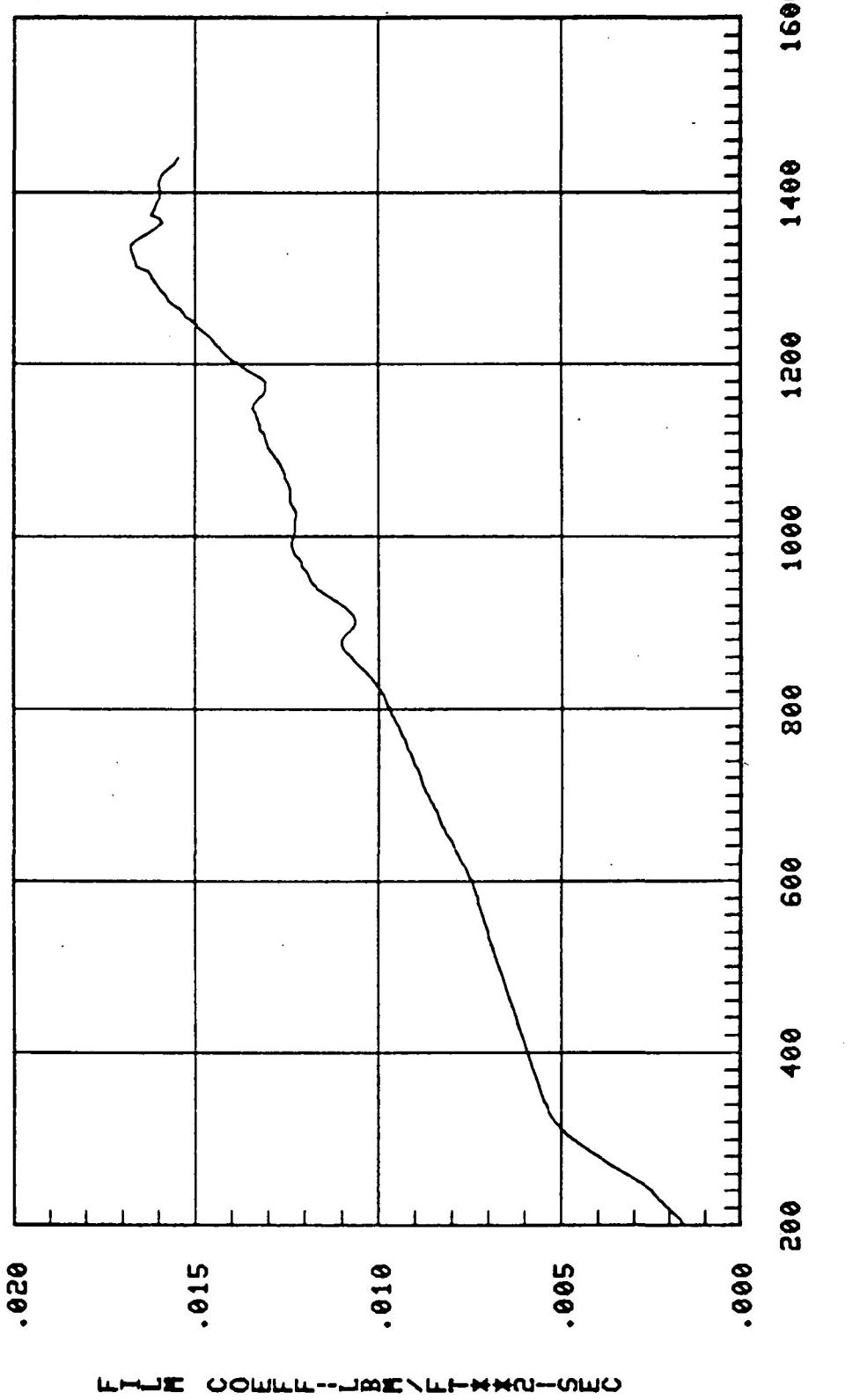
HREF



•11/18

STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

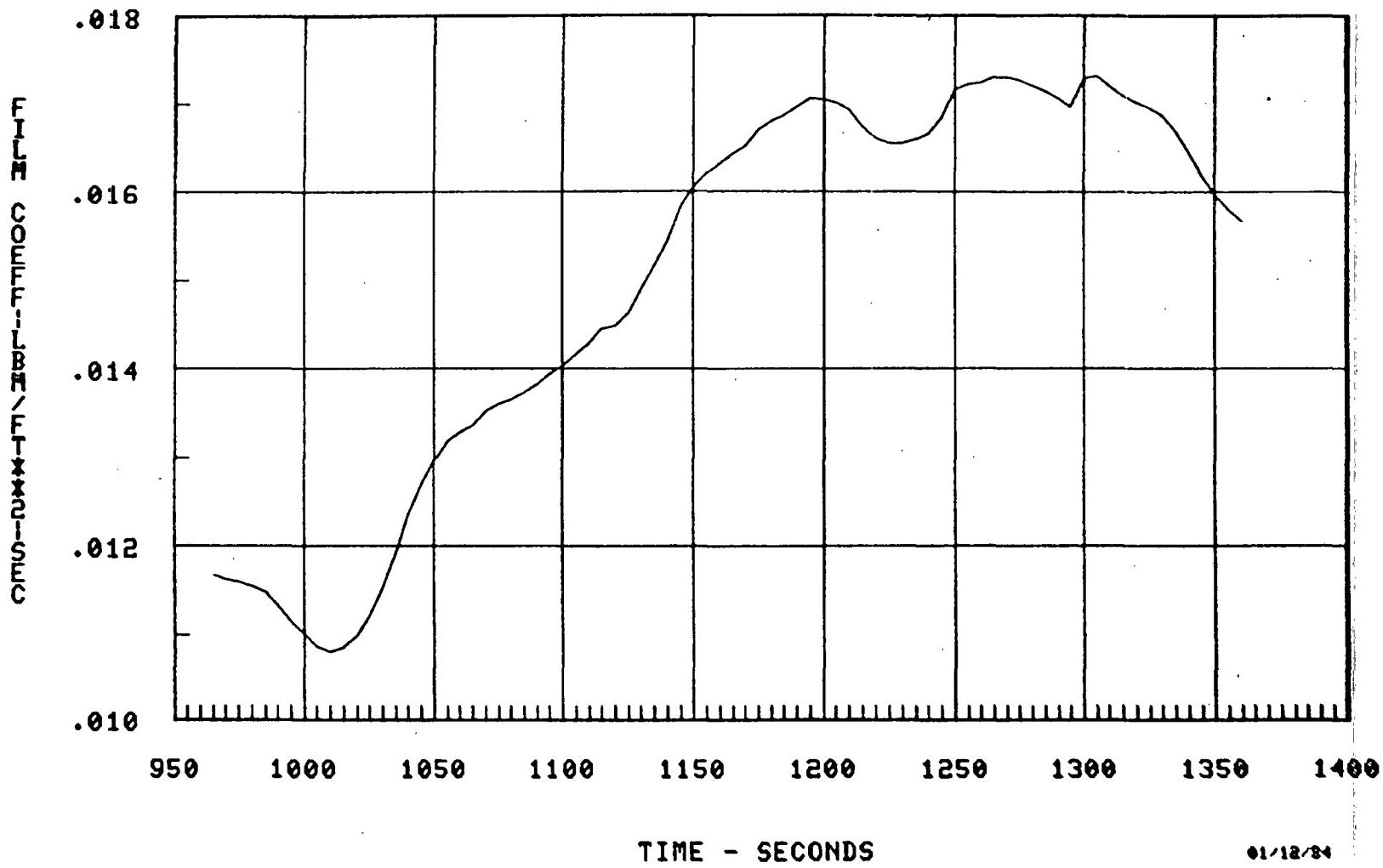
HREF



FILE C:\WAVE\FTXNU-SW0

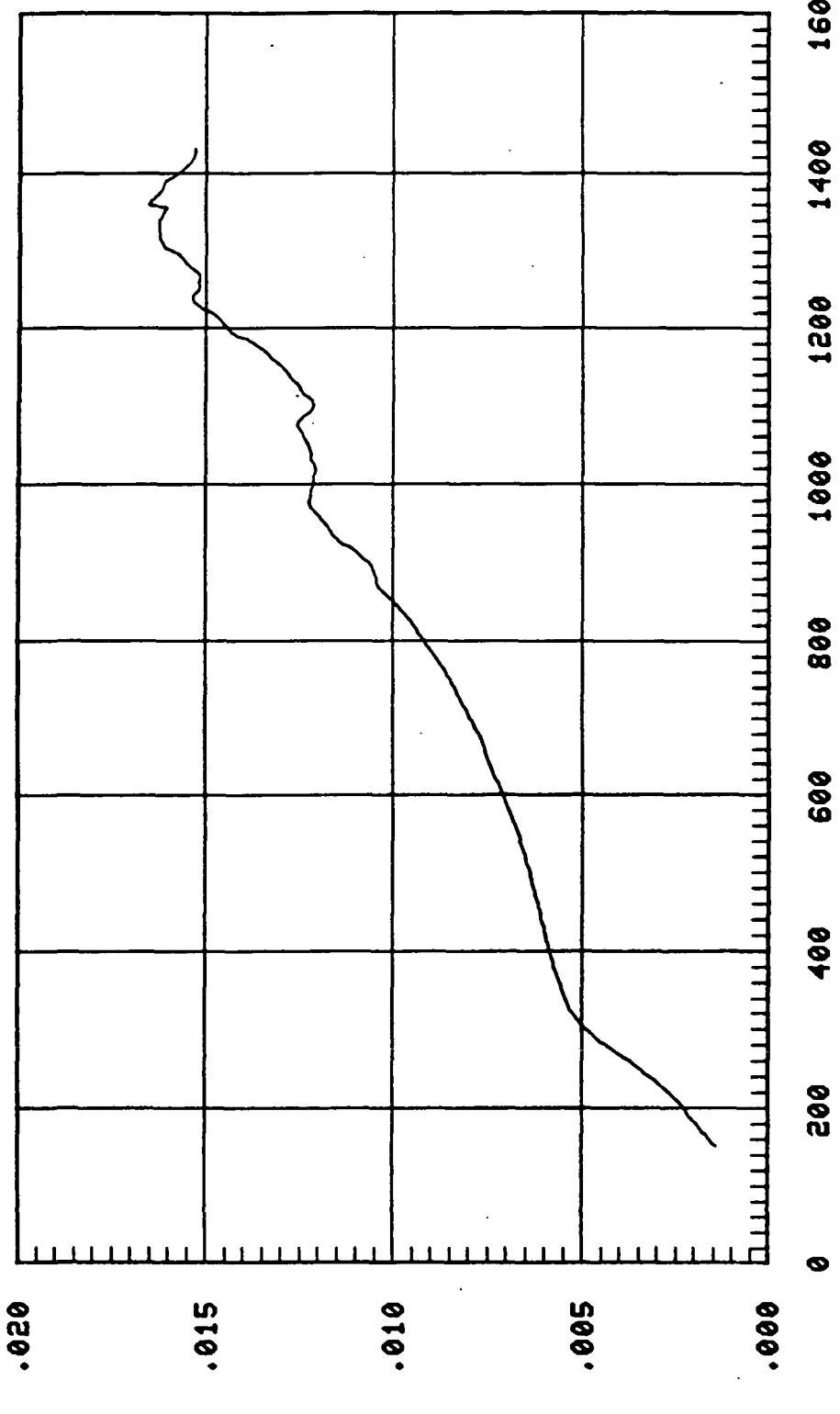
STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF



STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF



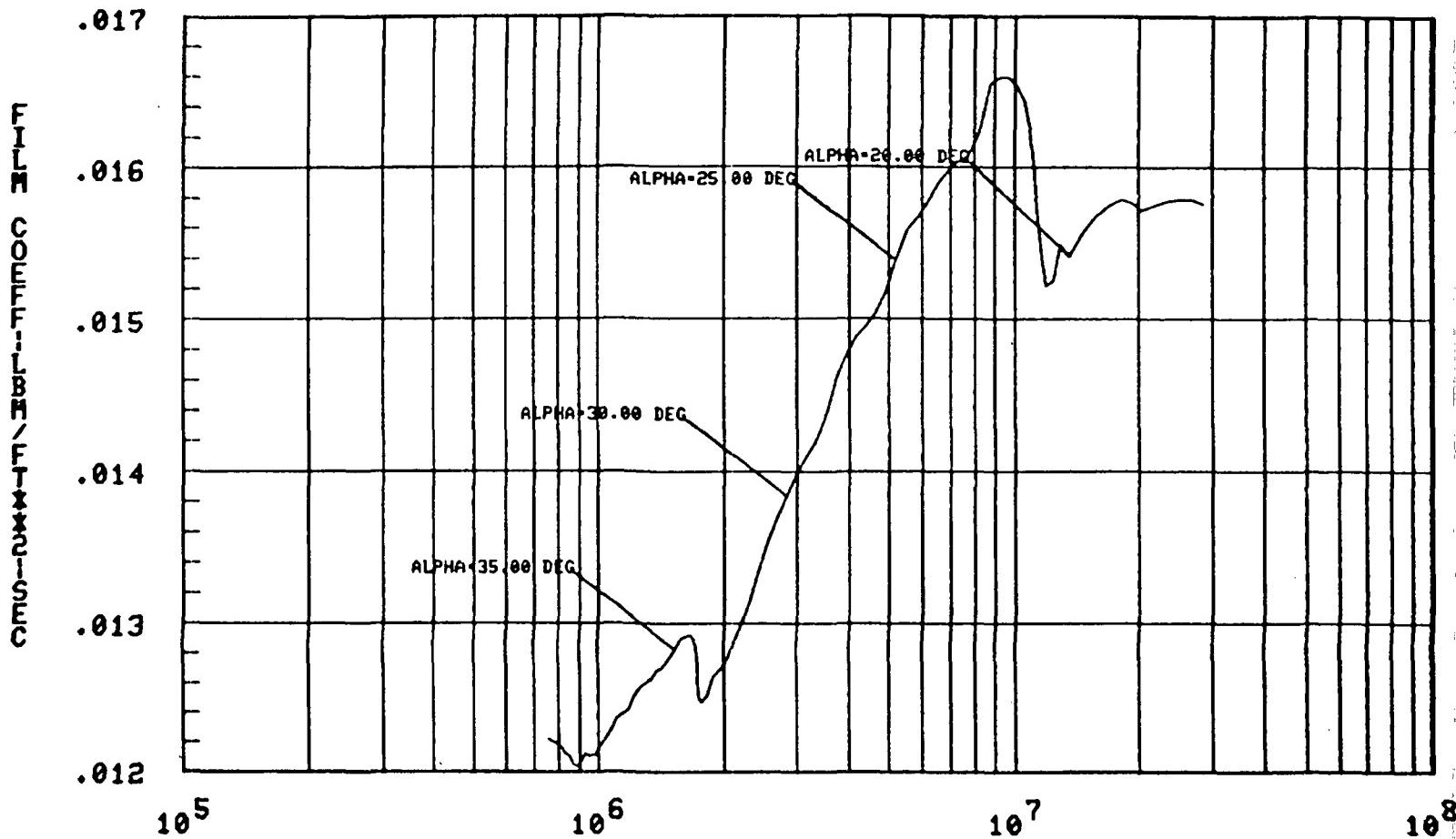
WHITE COUNTER-MEASURED DATA

STS-1 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

1065-1500 SEC

A-66

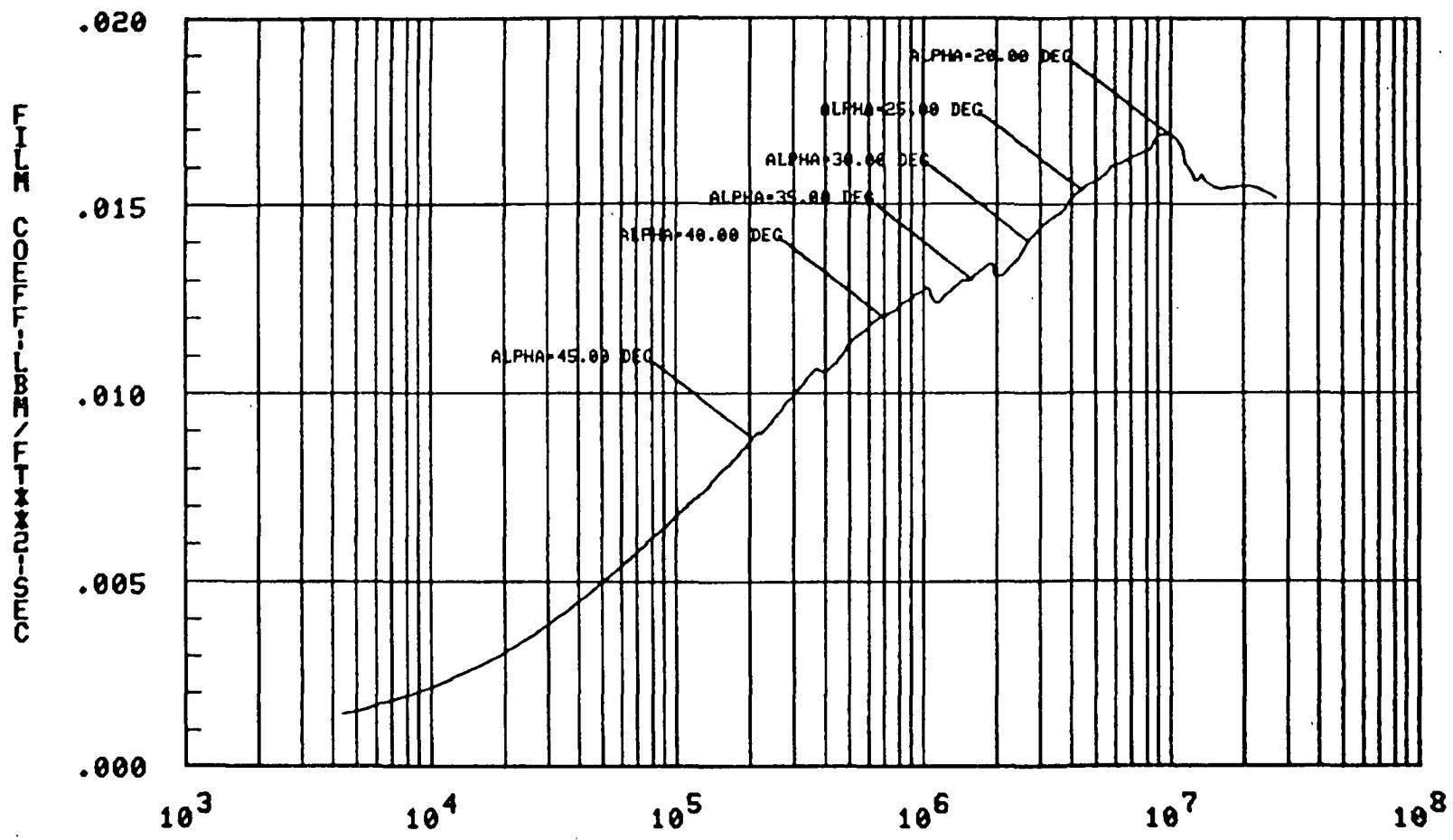


01/11/84
BASE TIME - 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

200-1530 SEC



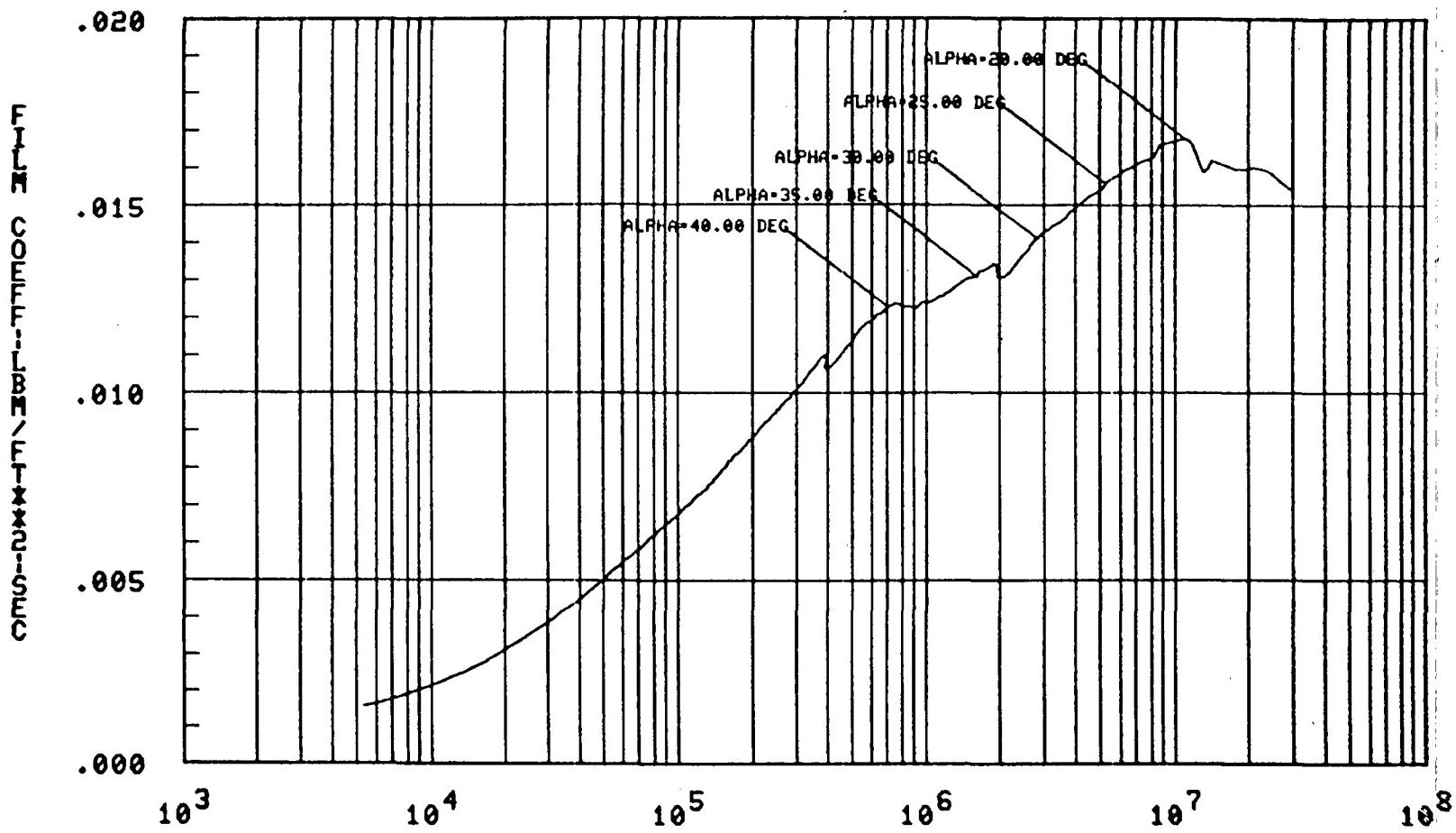
REYNOLDS NUMBER (NS)

01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

200-1440 SEC



REYNOLDS NUMBER (NS)

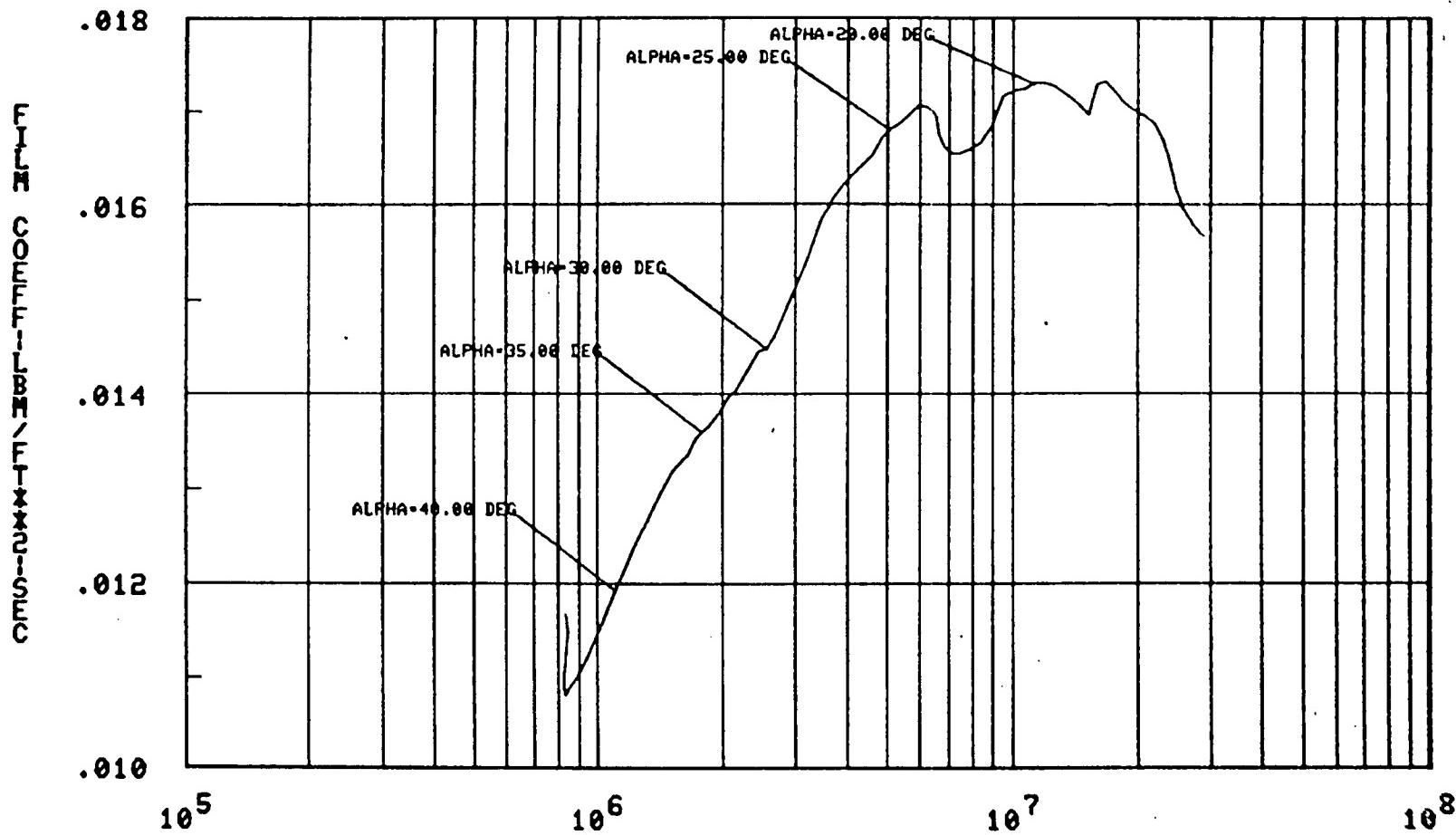
01/11/84
BASE TIME - 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

965-1360 SEC

A-69



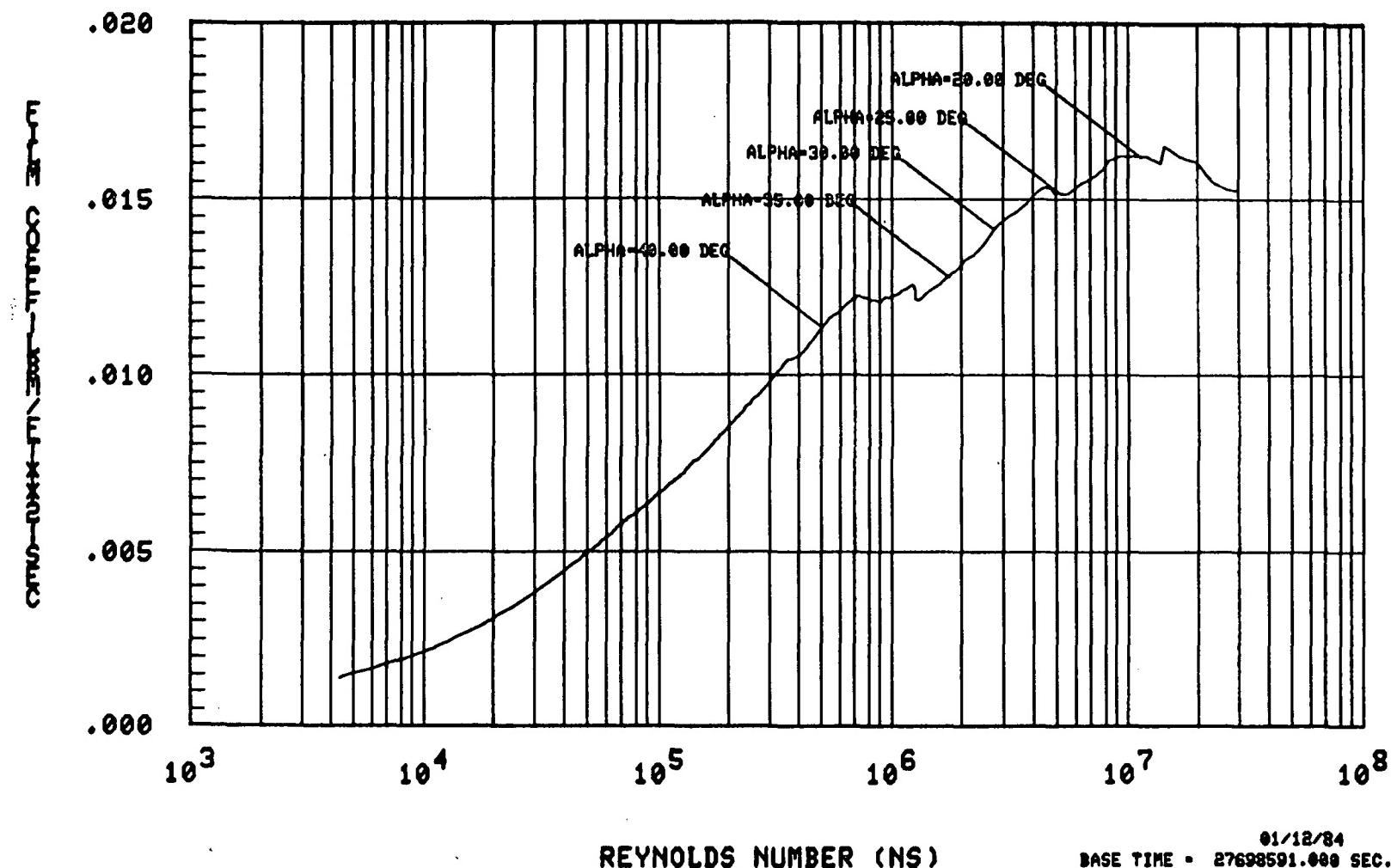
REYNOLDS NUMBER (NS)

01/12/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE & PLB DOOR) Z=400 & Z=440

HREF

150-1430 SEC



01/12/84
BASE TIME = 27698591.000 SEC.

APPENDIX B

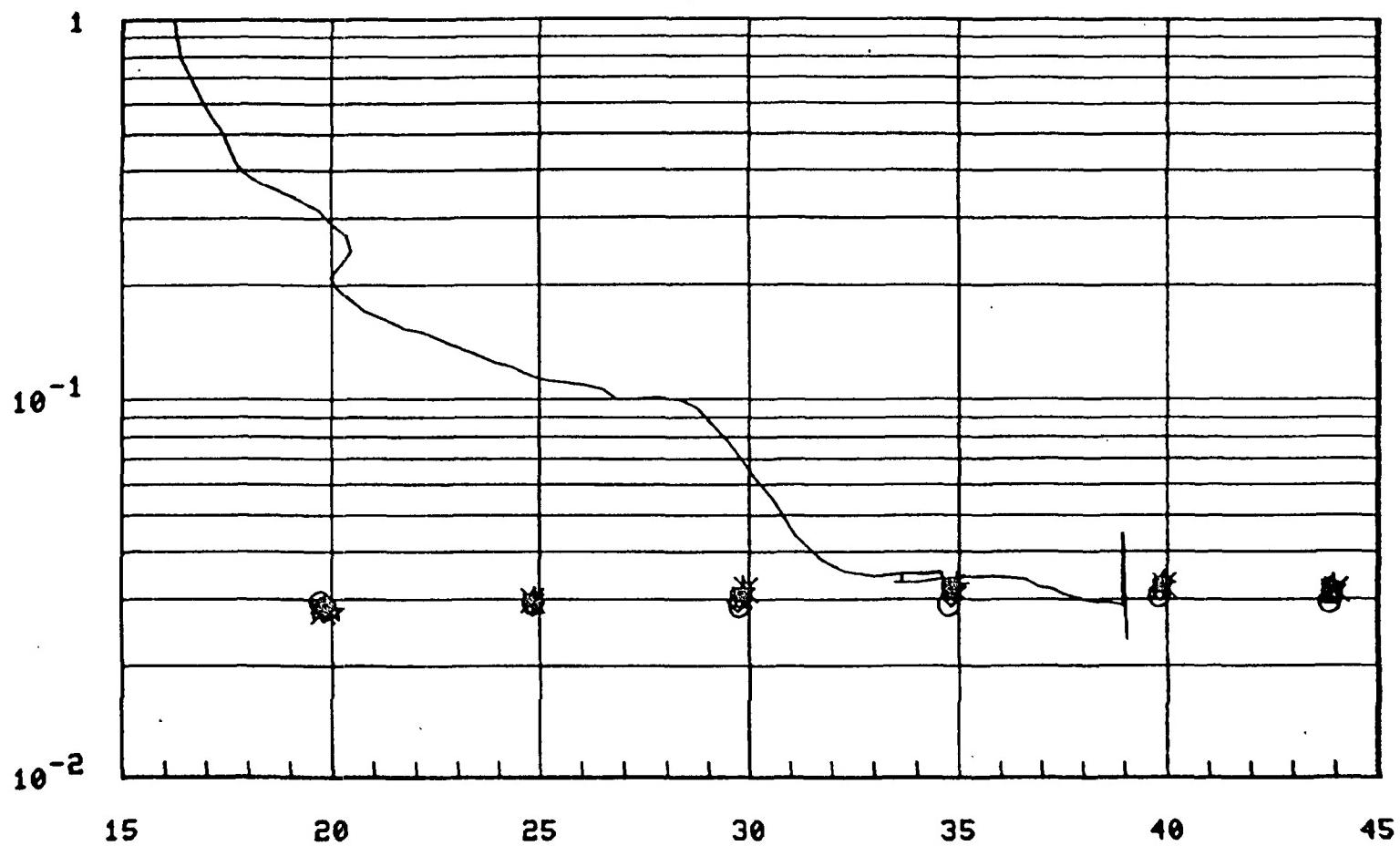
FLIGHT DATA

STS-1 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U07T9892A/H-REF 1065-1500 SEC

O H A D X T



B-1

ANGLE-OF-ATTACK - DEG

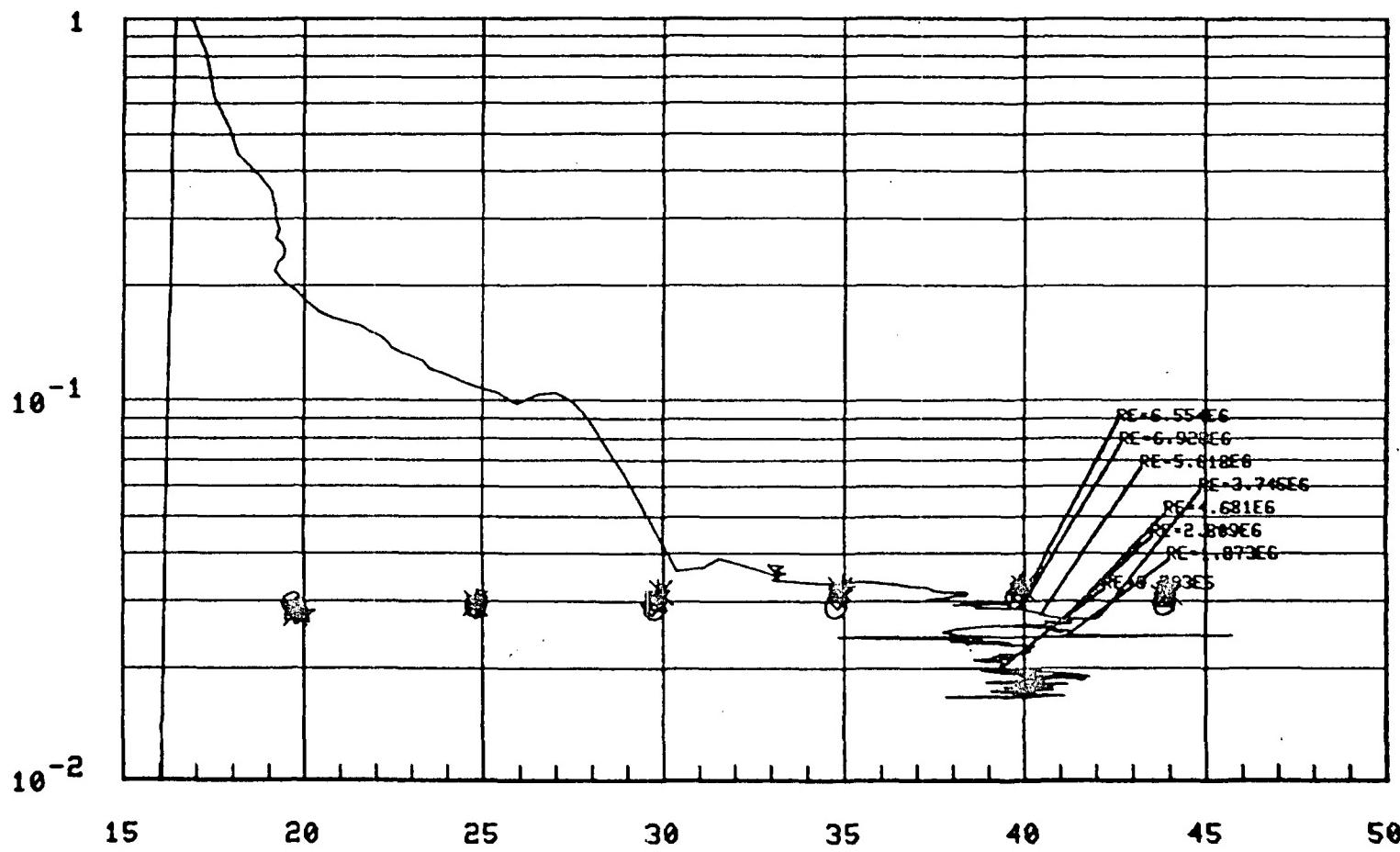
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U8779892A/H-REF 200-1530 SEC

O ◊ ▲ △ ★ +
 X



B-2

ANGLE-OF-ATTACK - DEG

01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

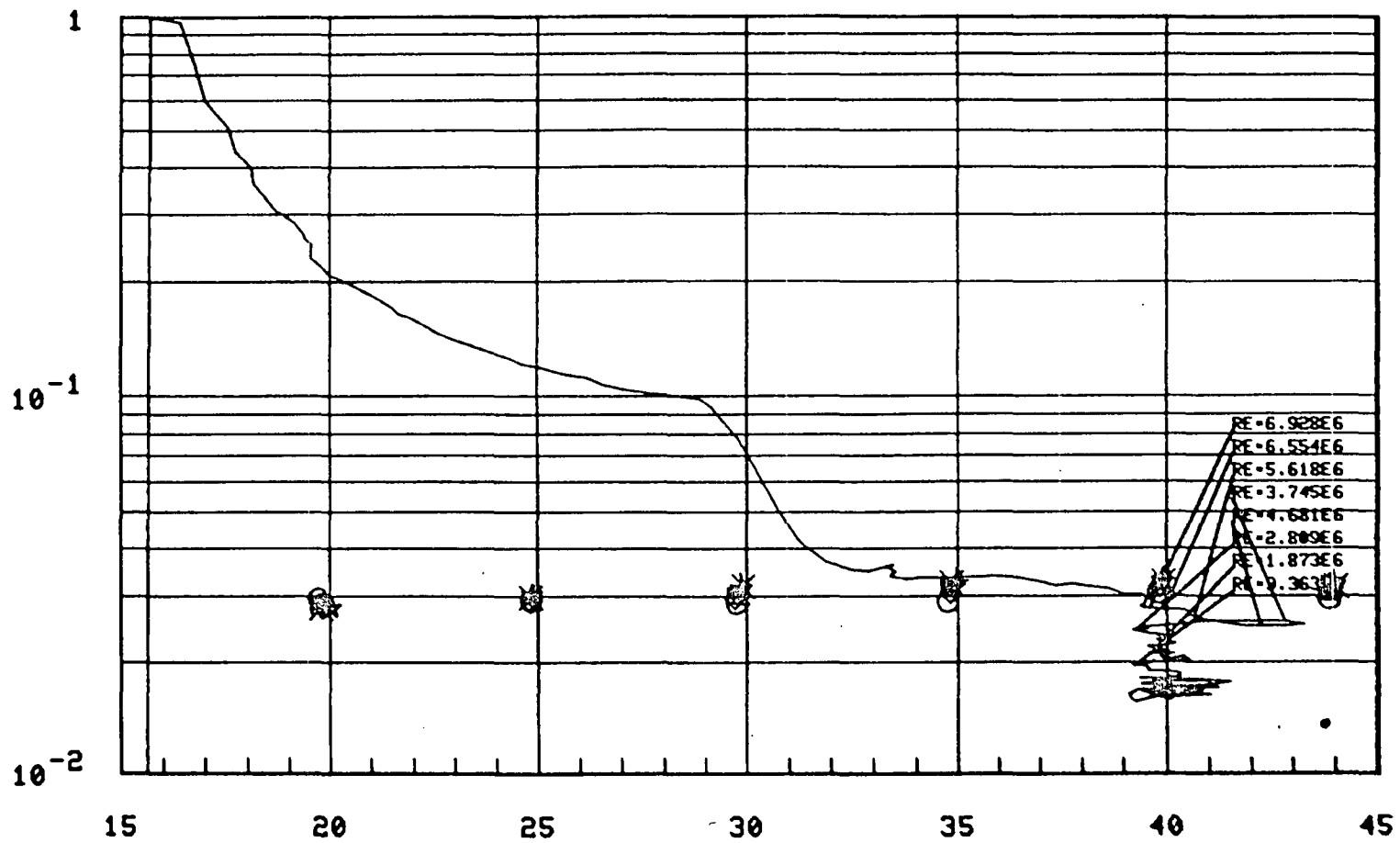
○ □ ◇ △ ▽ ★ + ×

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9892A/H-REF 200-1440 SEC

LINE COMPUTER : H/H-REF

B-3



ANGLE-OF-ATTACK - DEG

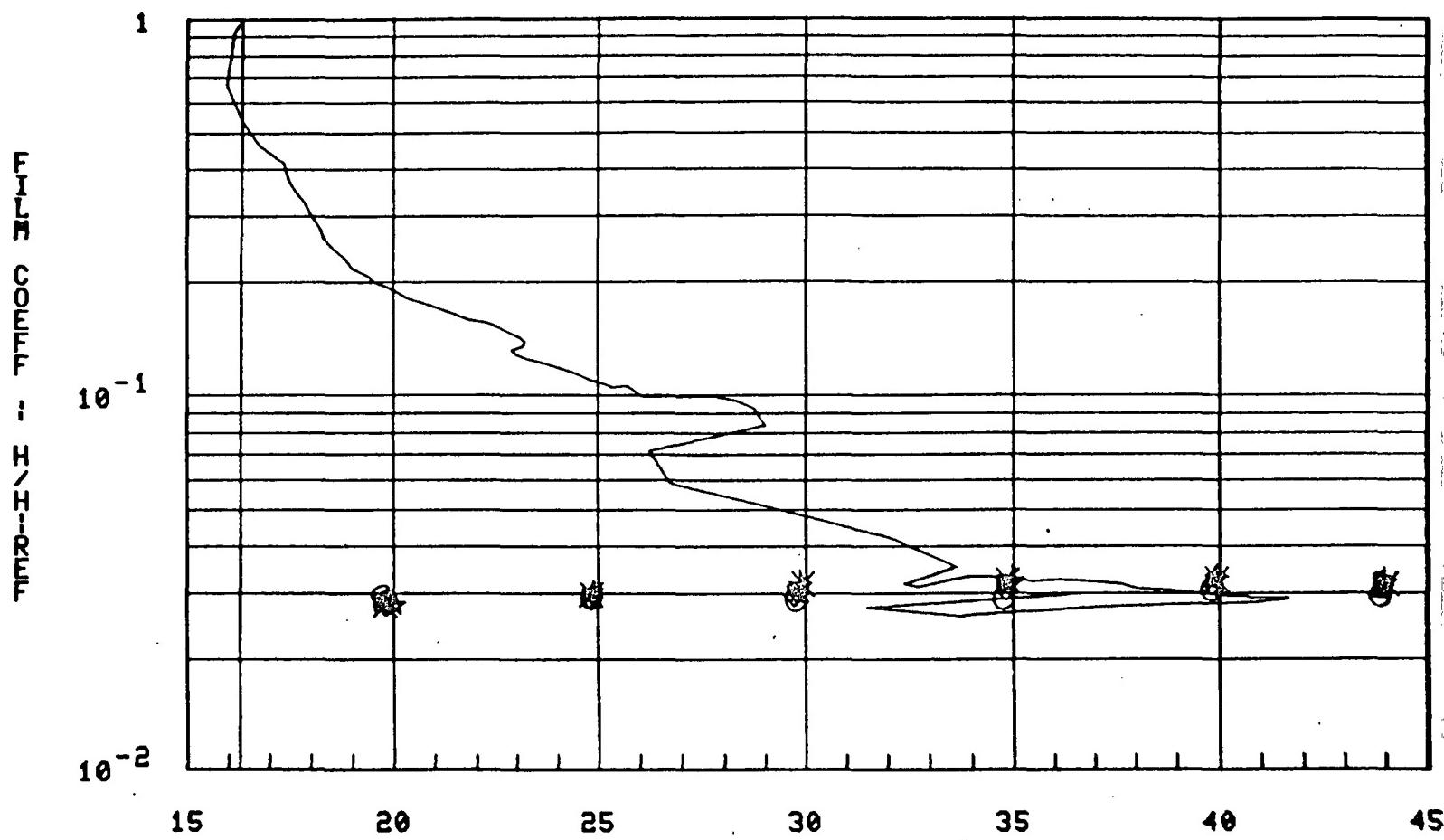
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

○ □ ◇ △ ★ +

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U07T9892A/H-REF 965-1360 SEC



01/12/84
ANGLE-OF-ATTACK - DEG

BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

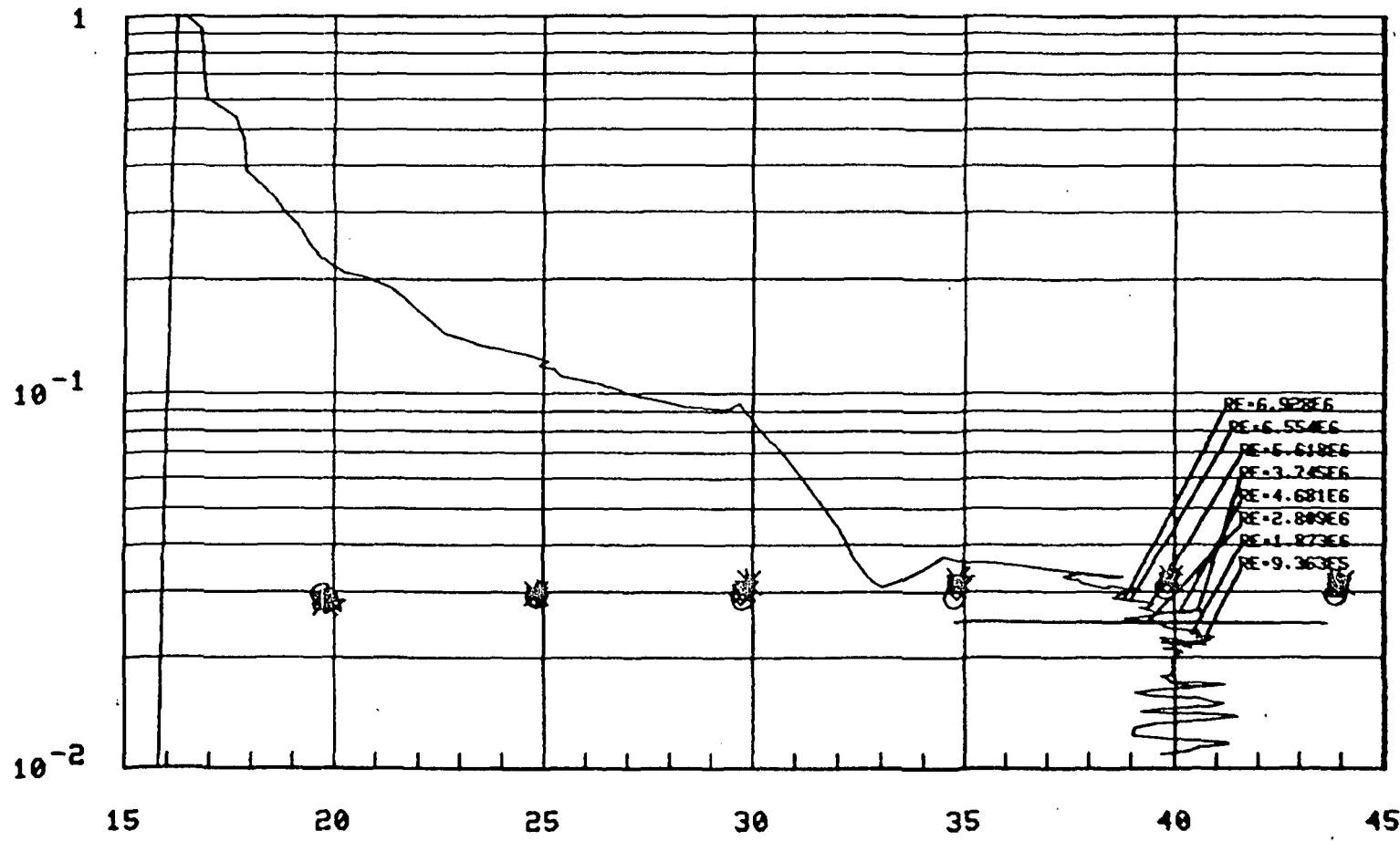
○ □ ◇ △ ★ ✕

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9892A/H-REF 150-1430 SEC

FIGURE COUNT - H\H\H\H\H\H\H

B-5



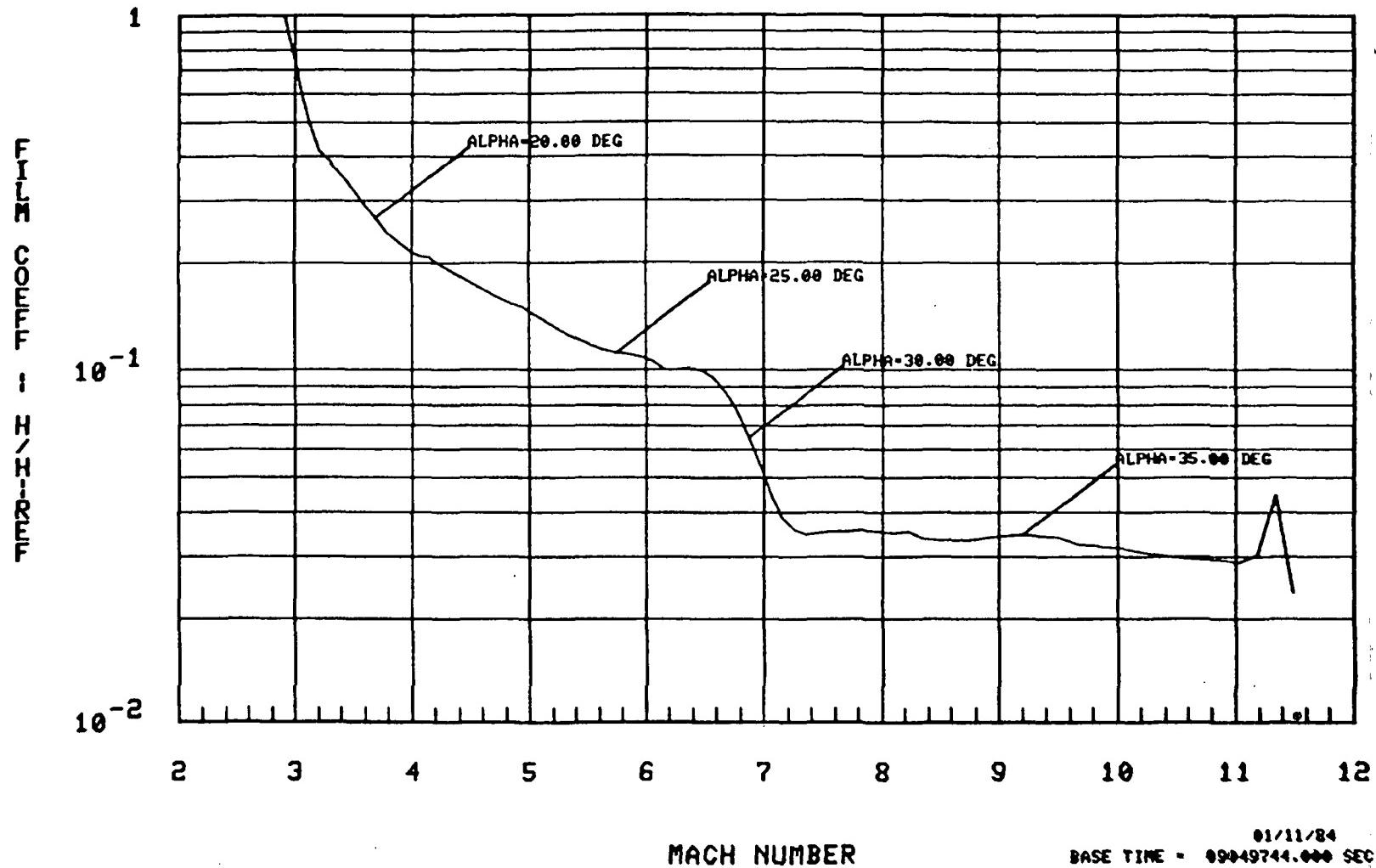
ANGLE-OF-ATTACK - DEG

01/12/84
 BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U07T9892A/H-REF 1065-1500 SEC

B-6



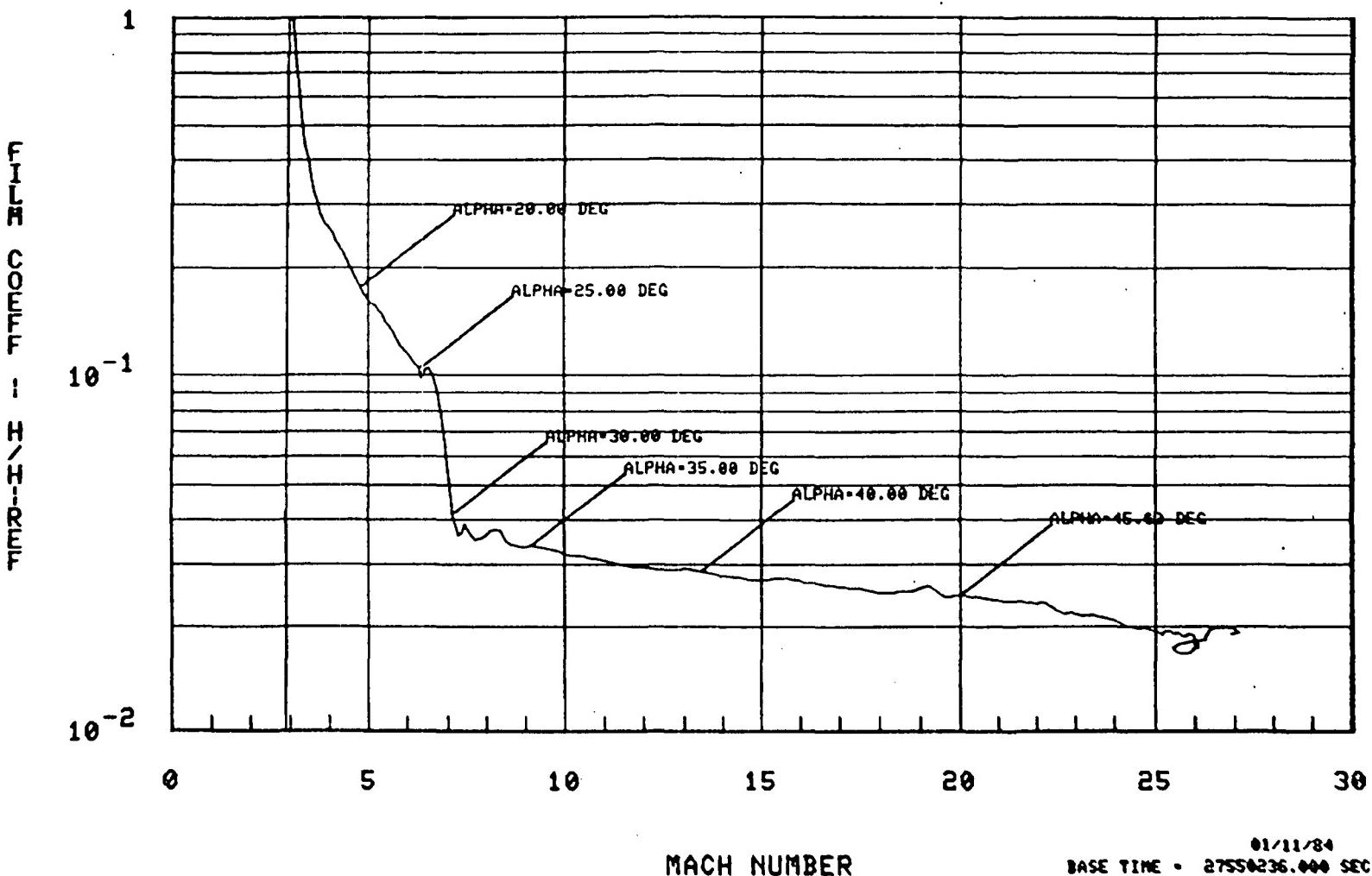
MACH NUMBER

01/11/84
BASE TIME - 09449744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U07T9892A/H-REF 200-1530 SEC

B-7



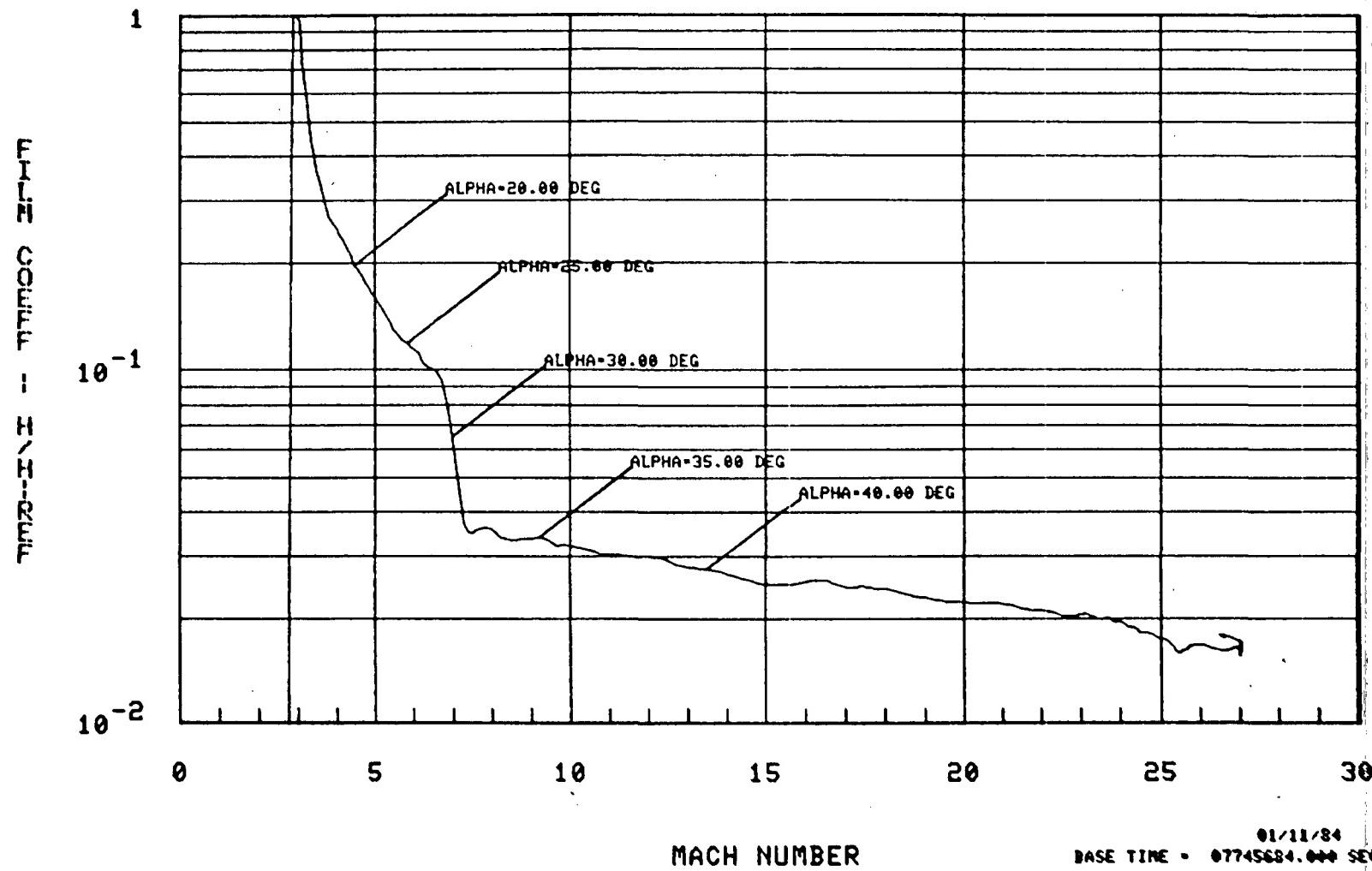
MACH NUMBER

01/11/84
BASE TIME = 27554236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U07T9892A/H-REF 200-1440 SEC

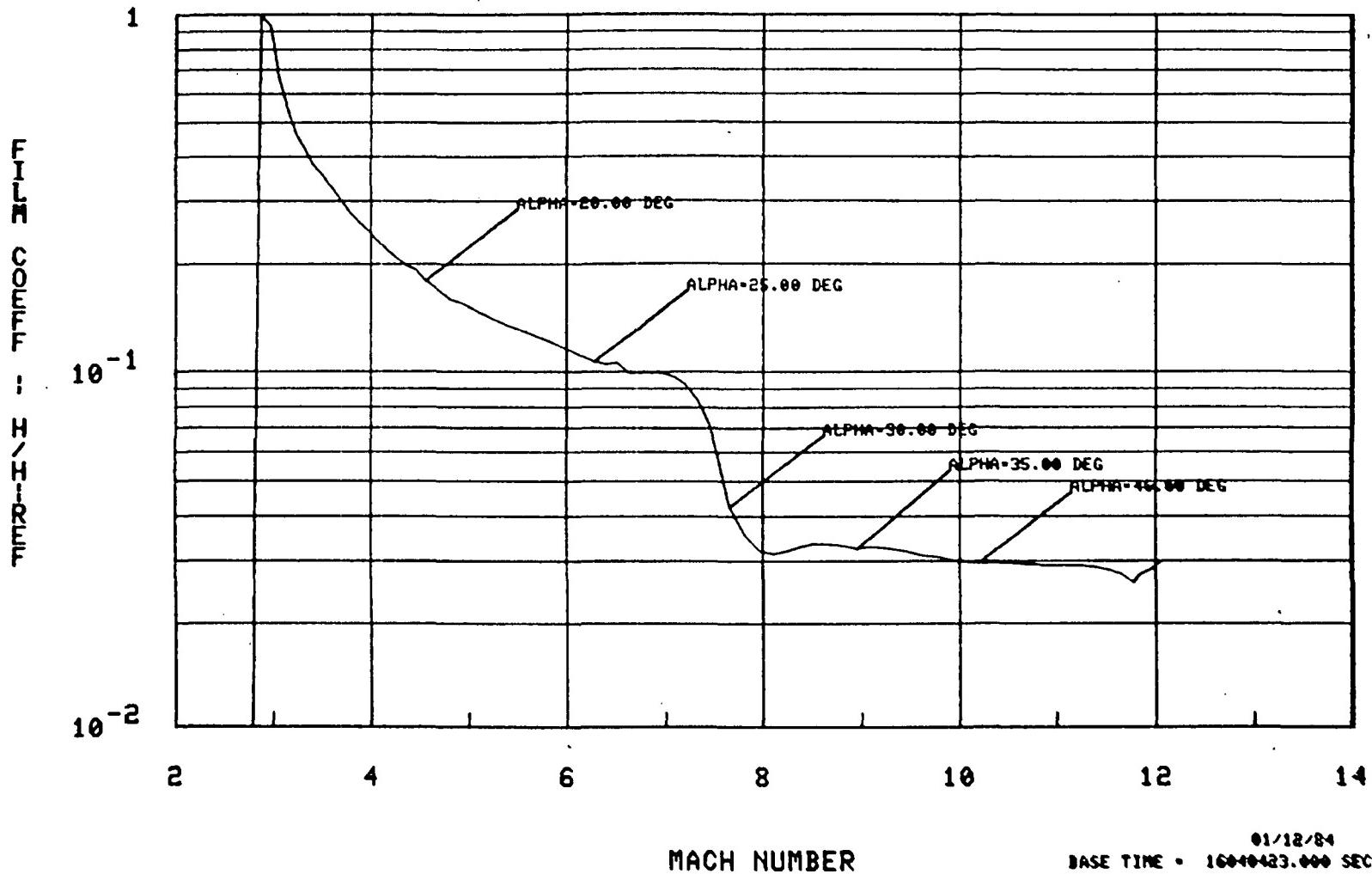
B-8



STS-4 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

_____ V07T9892A/H-REF 965-1360 SEC

B-9



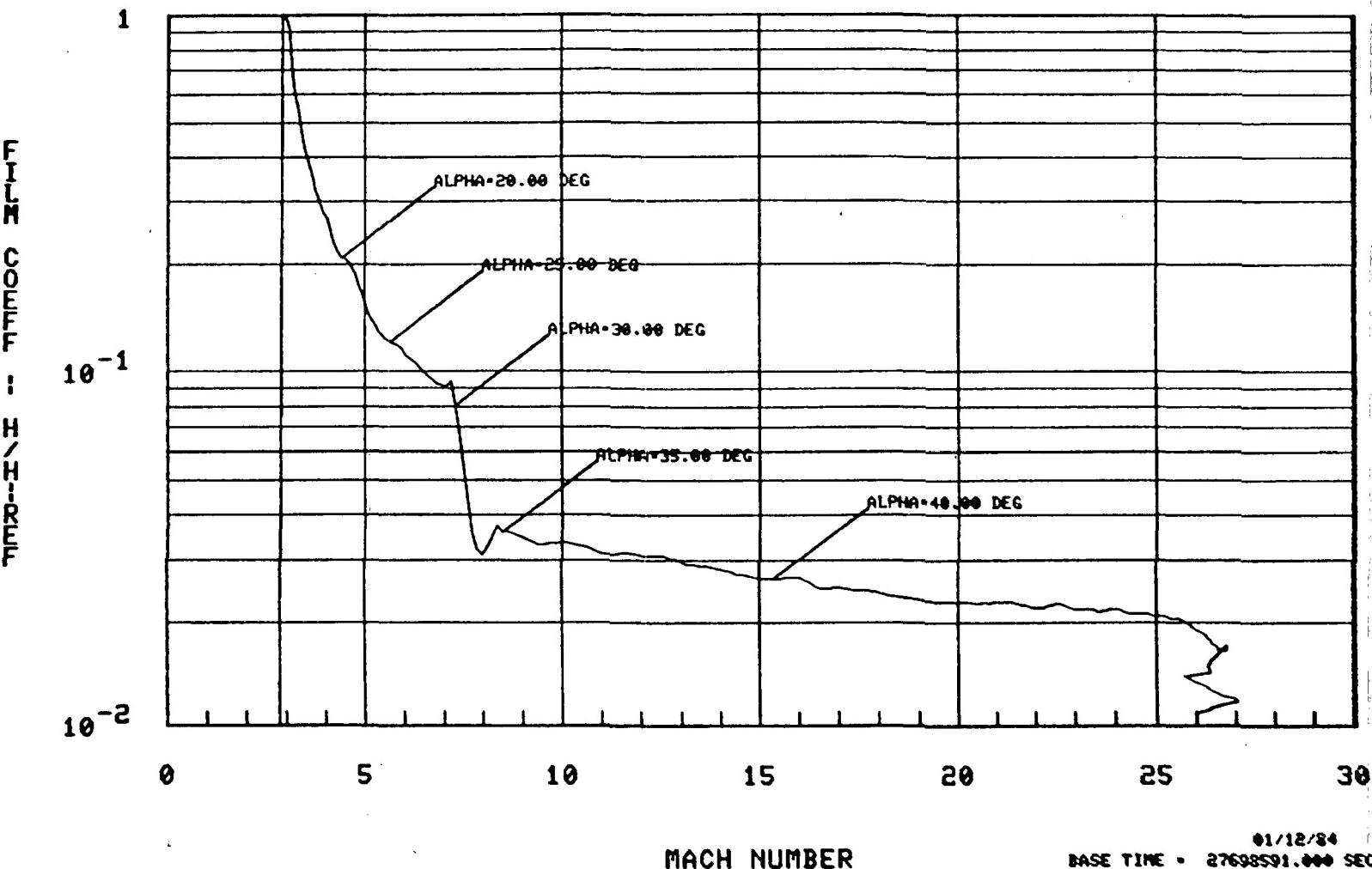
MACH NUMBER

01/12/84
BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U07T9892A/H-REF 150-1430 SEC

B-10



MACH NUMBER

01/12/84
BASE TIME • 27608591.000 SEC.

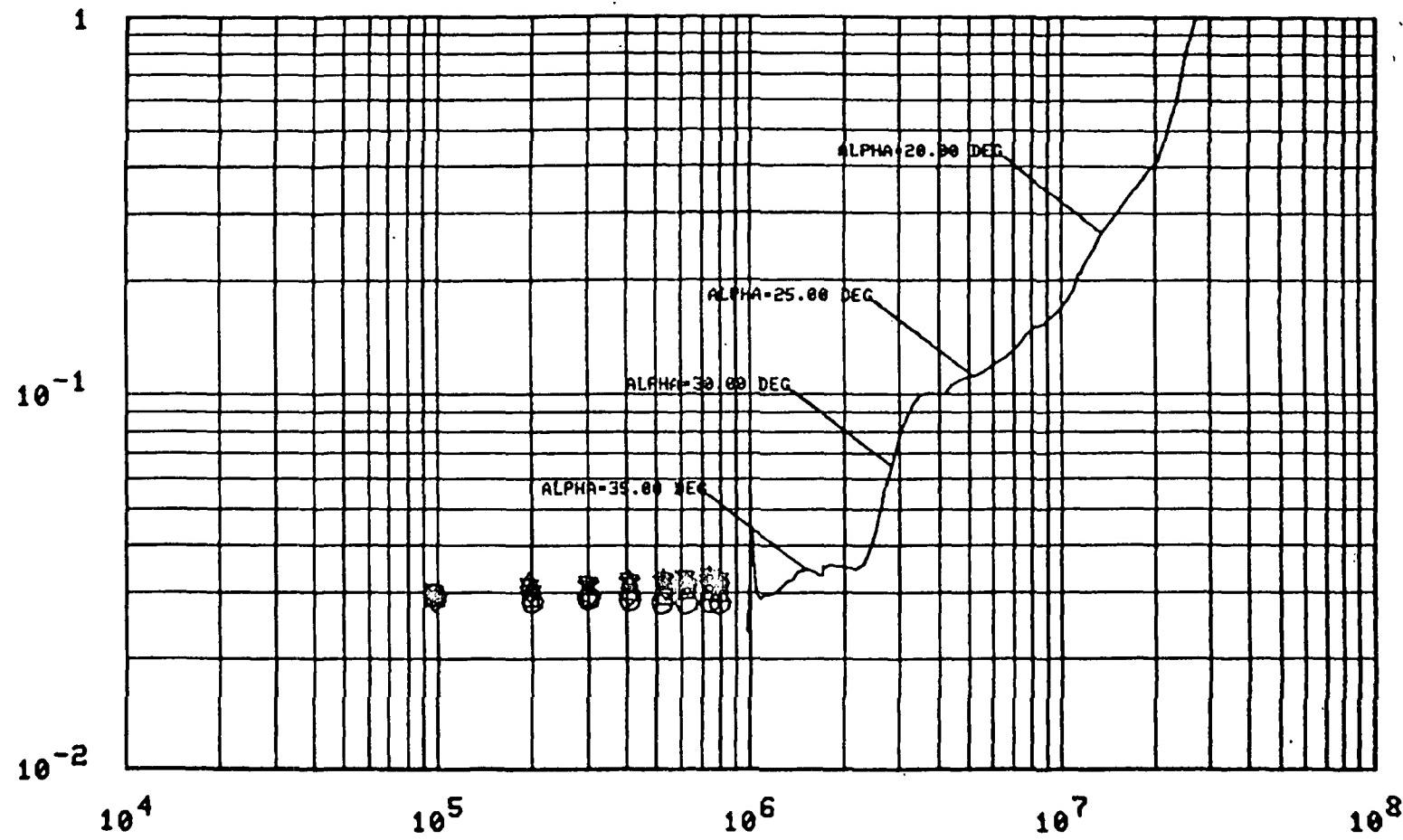
STS-1 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9892A/H-REF 1065-1500 SEC



B-11



REYNOLDS NUMBER (NS)

01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

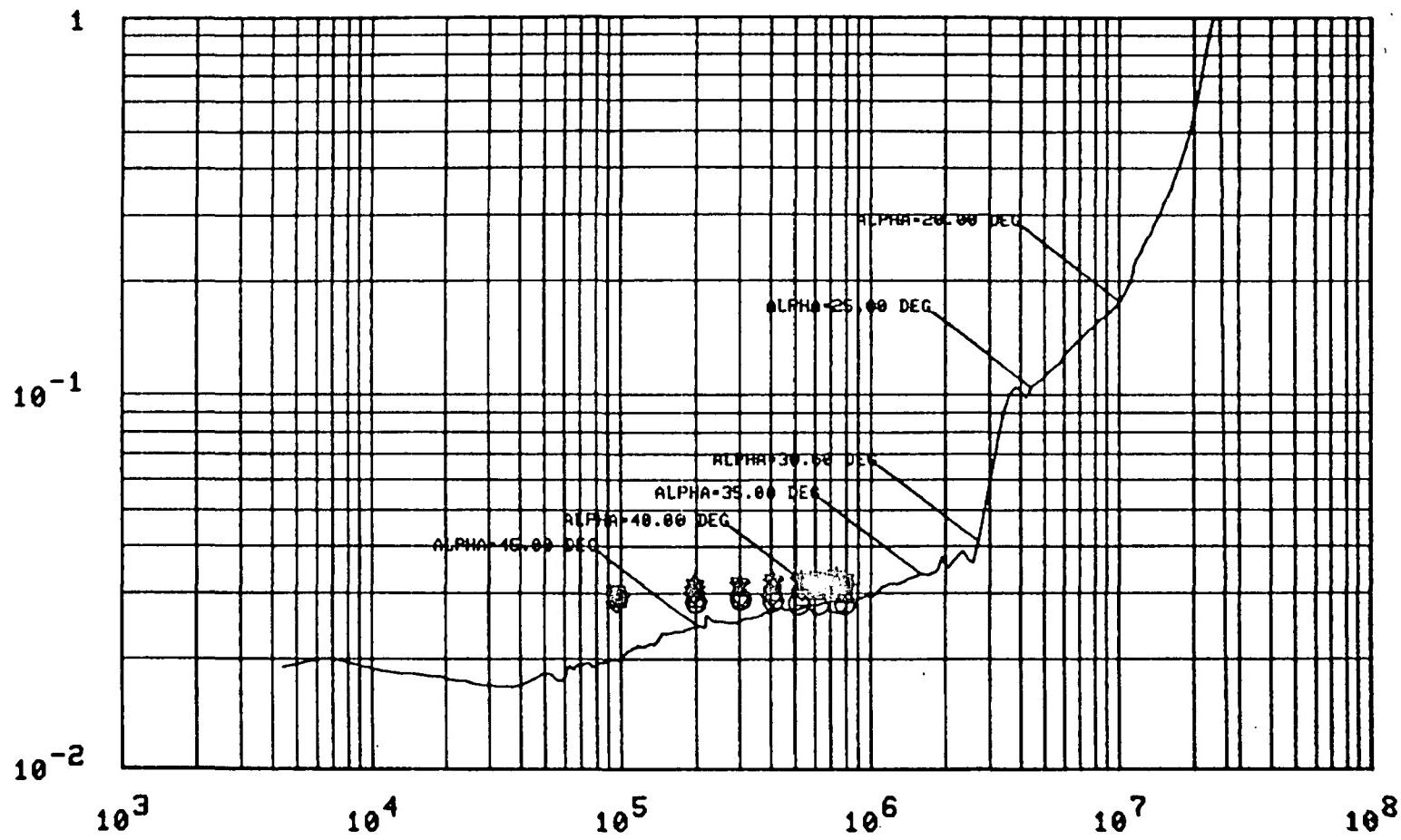
○□◇△▽★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9892A/H-REF 200-1530 SEC

PIPE FRICTION COEFFICIENT

B-12



REYNOLDS NUMBER (NS)

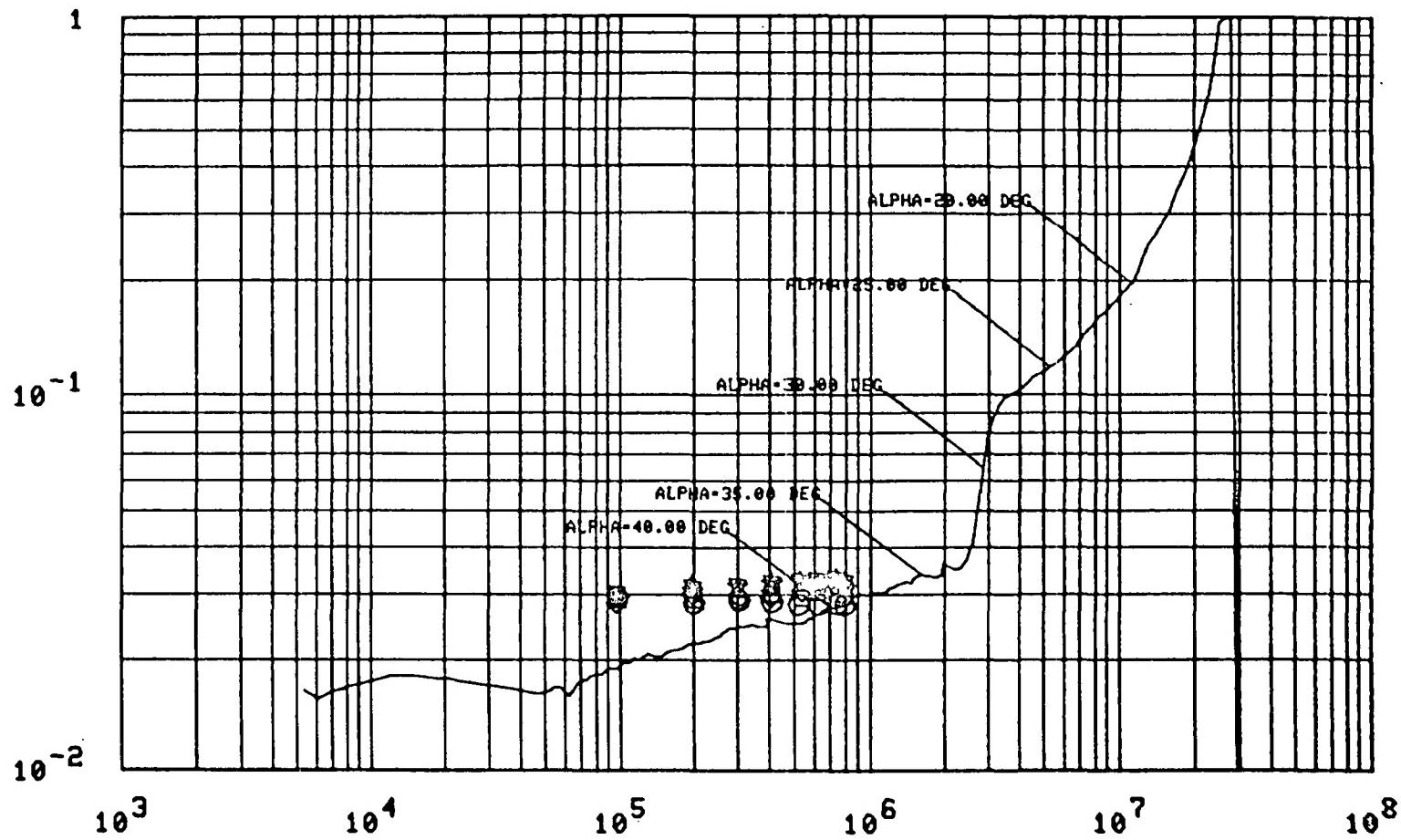
01/11/84
 BASE TIME = 27550336.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9892A/H-REF 200-1440 SEC



B-13

REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.000 SEC.

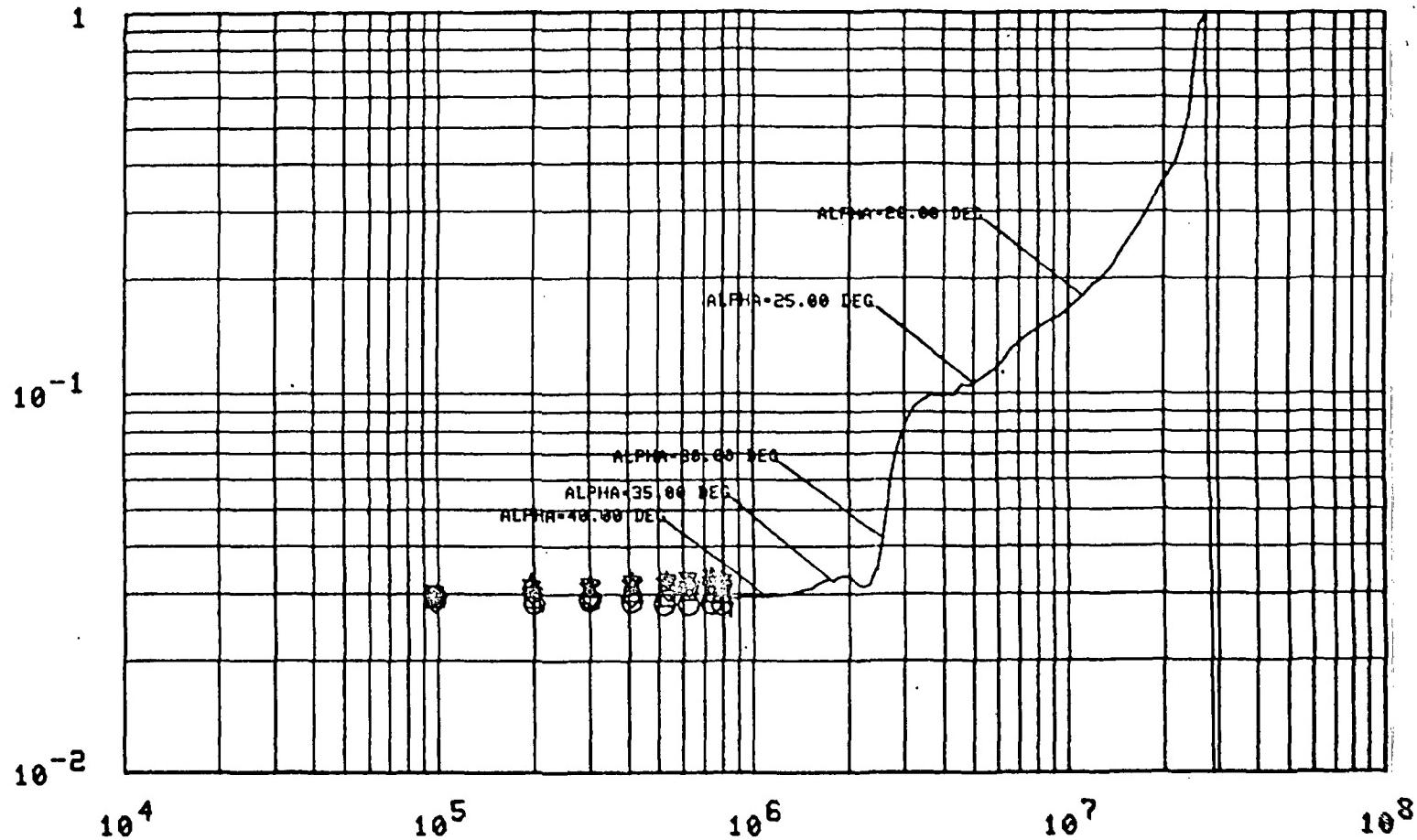
STS-4 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9892A/H-REF 965-1360 SEC



LINE COLOR - HUE



B-14

REYNOLDS NUMBER (NS)

01/12/84
BASE TIME = 16040483.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

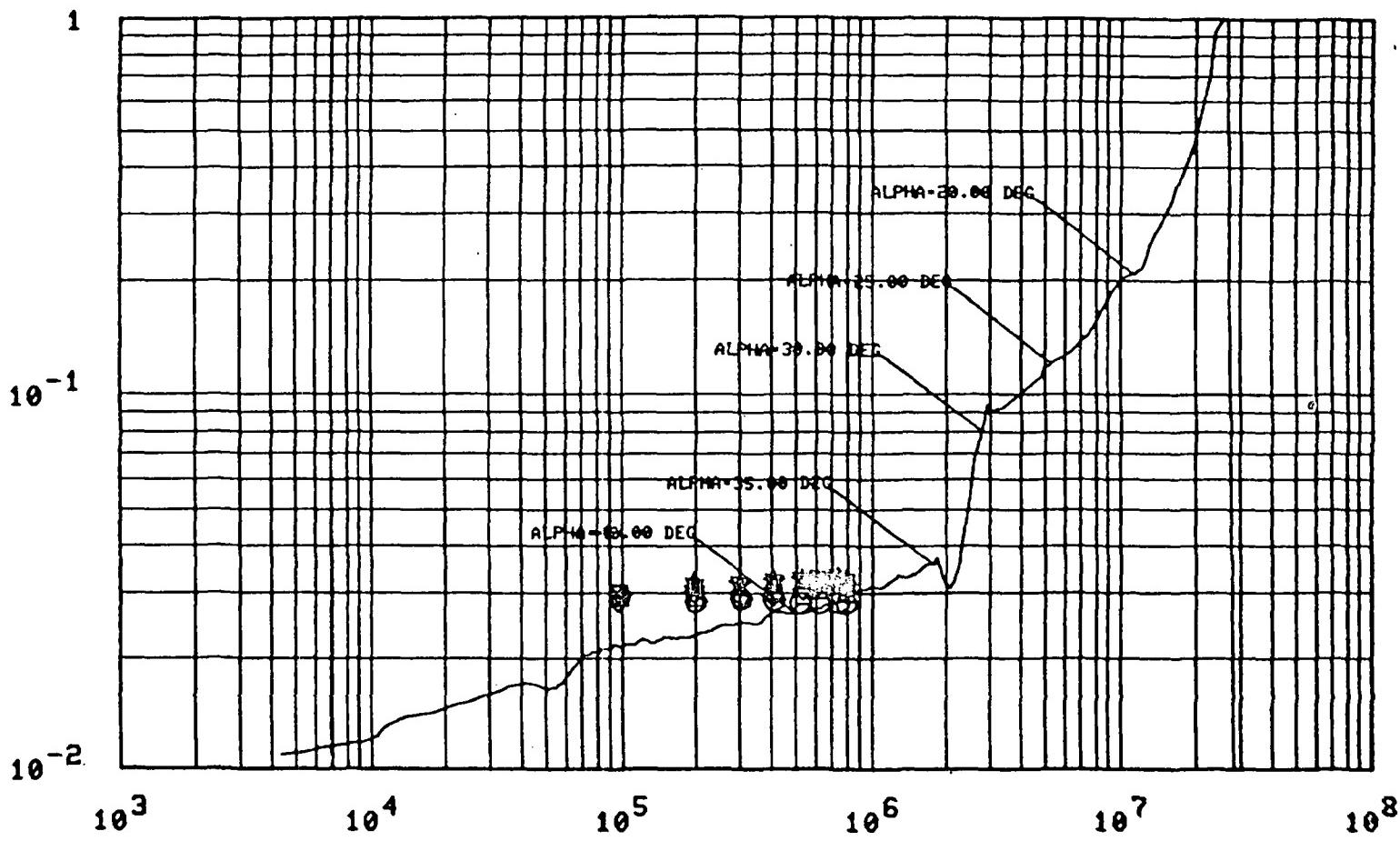
O □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9892A/H-REF 150-1430 SEC

LINE CONFE : H\H--REF

B-15

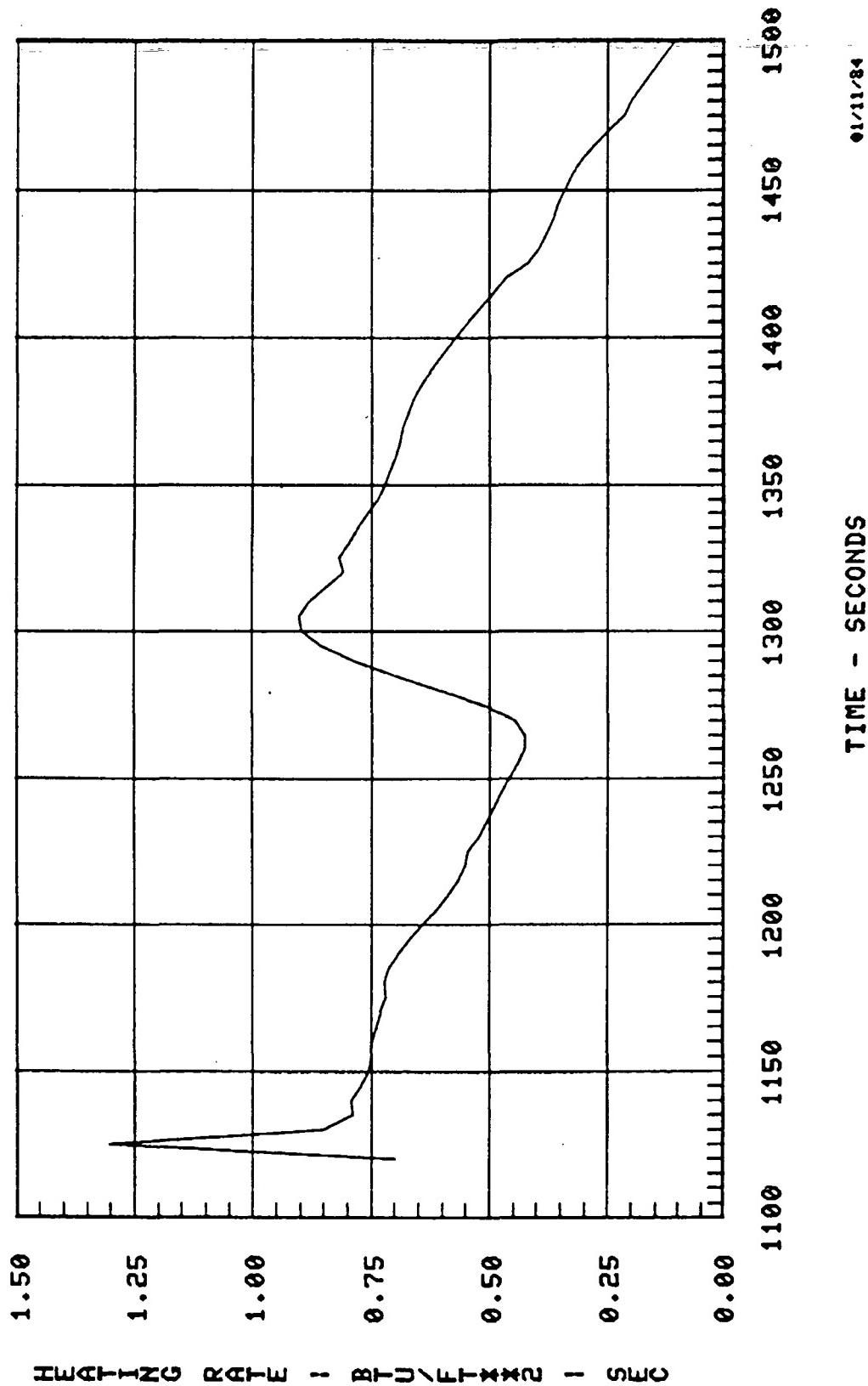


REYNOLDS NUMBER (NS)

01/12/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U87T9892A

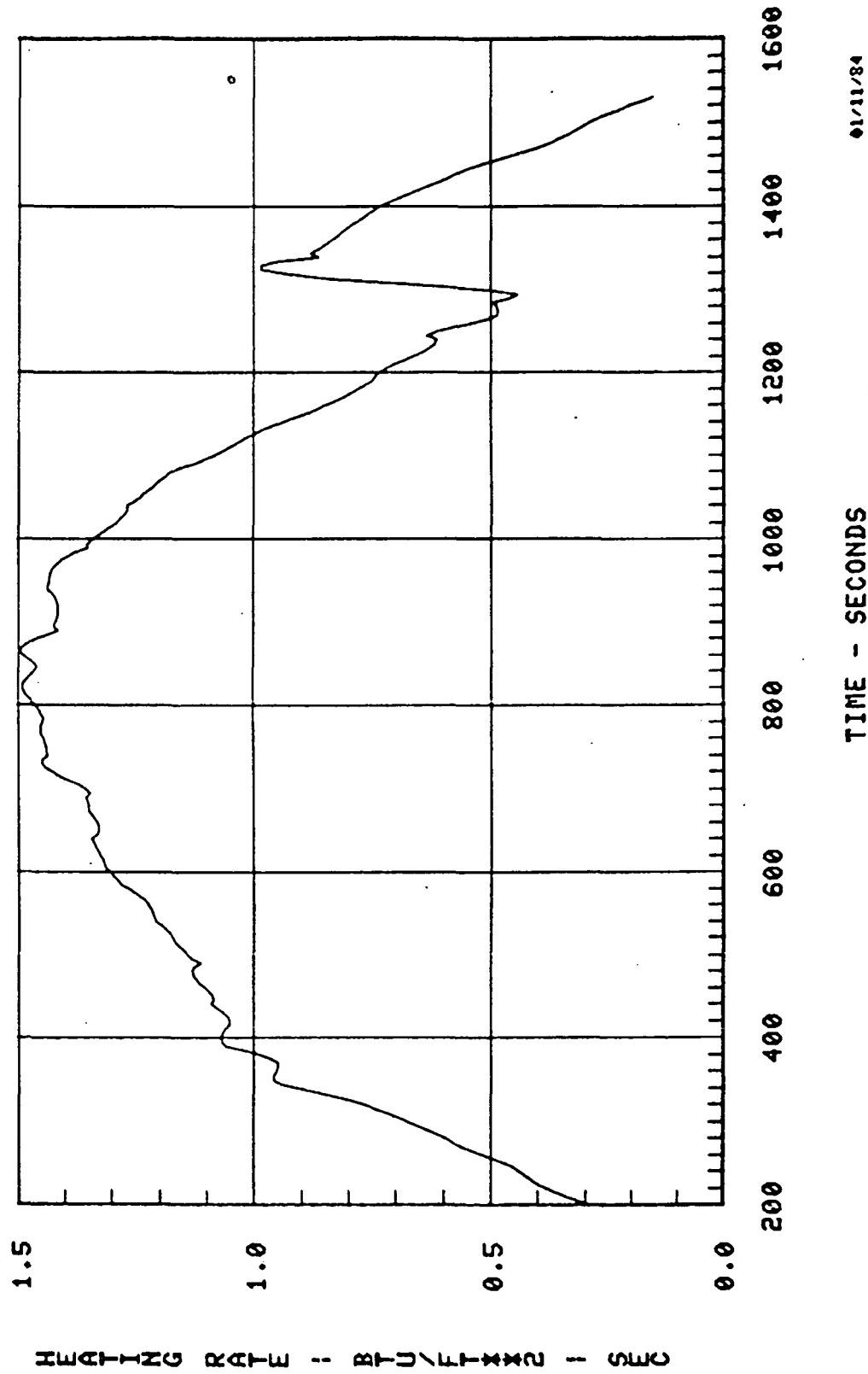


TIME - SECONDS

01/11/84

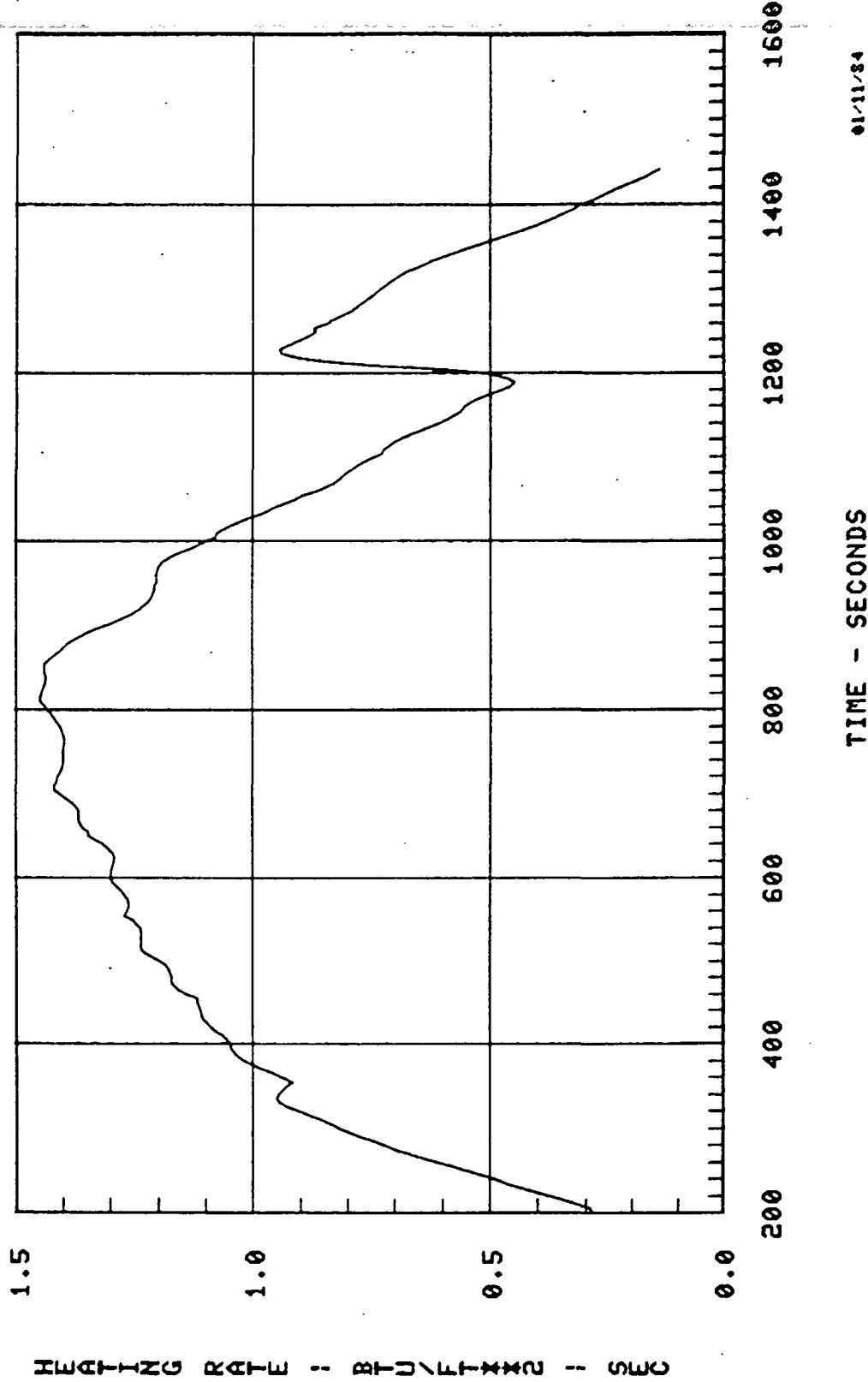
STS-2 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U0779892A



STS-3 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

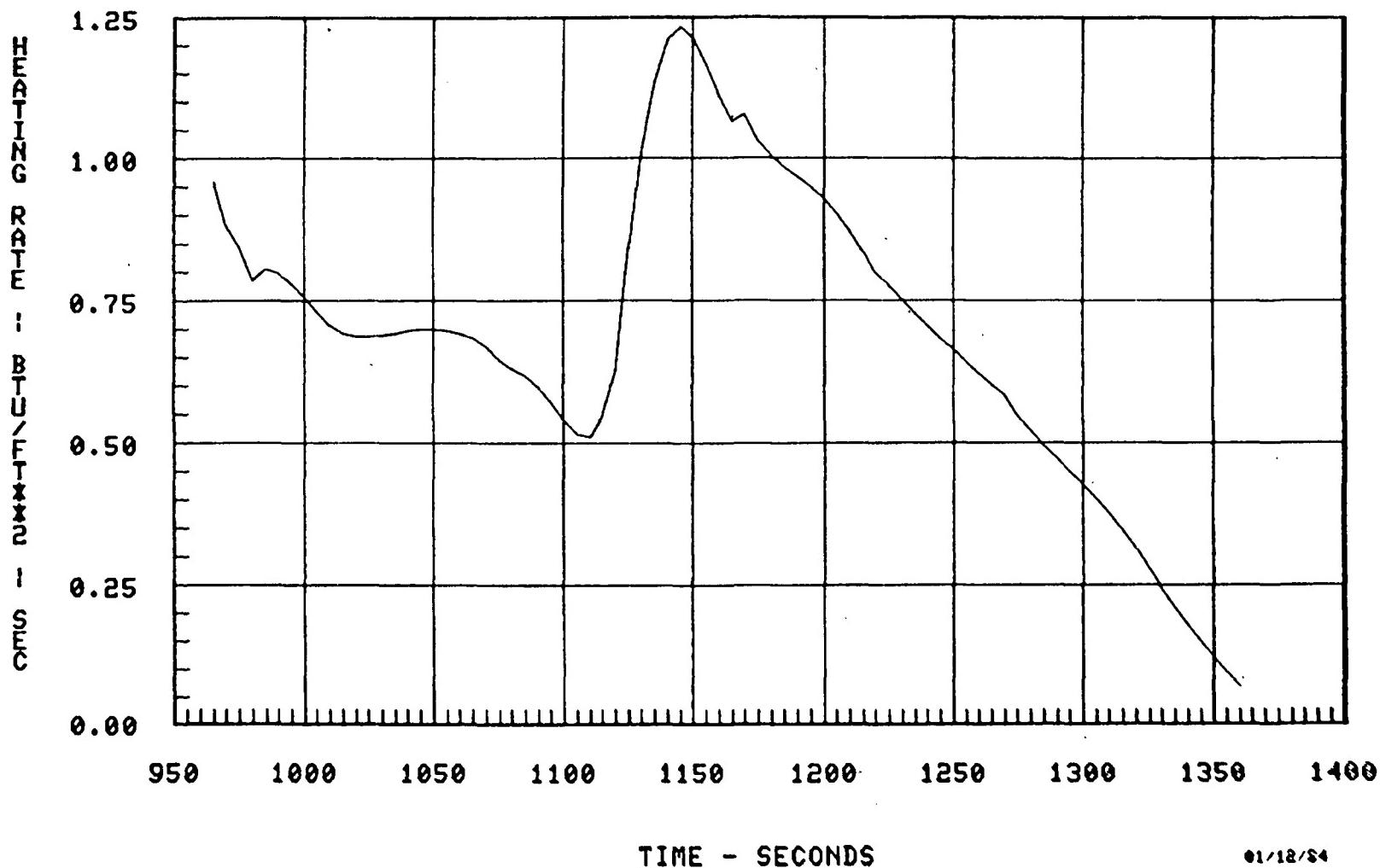
U077T9892A



INCHING RATE -- MILE/MIN -- SWC

STS-4 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

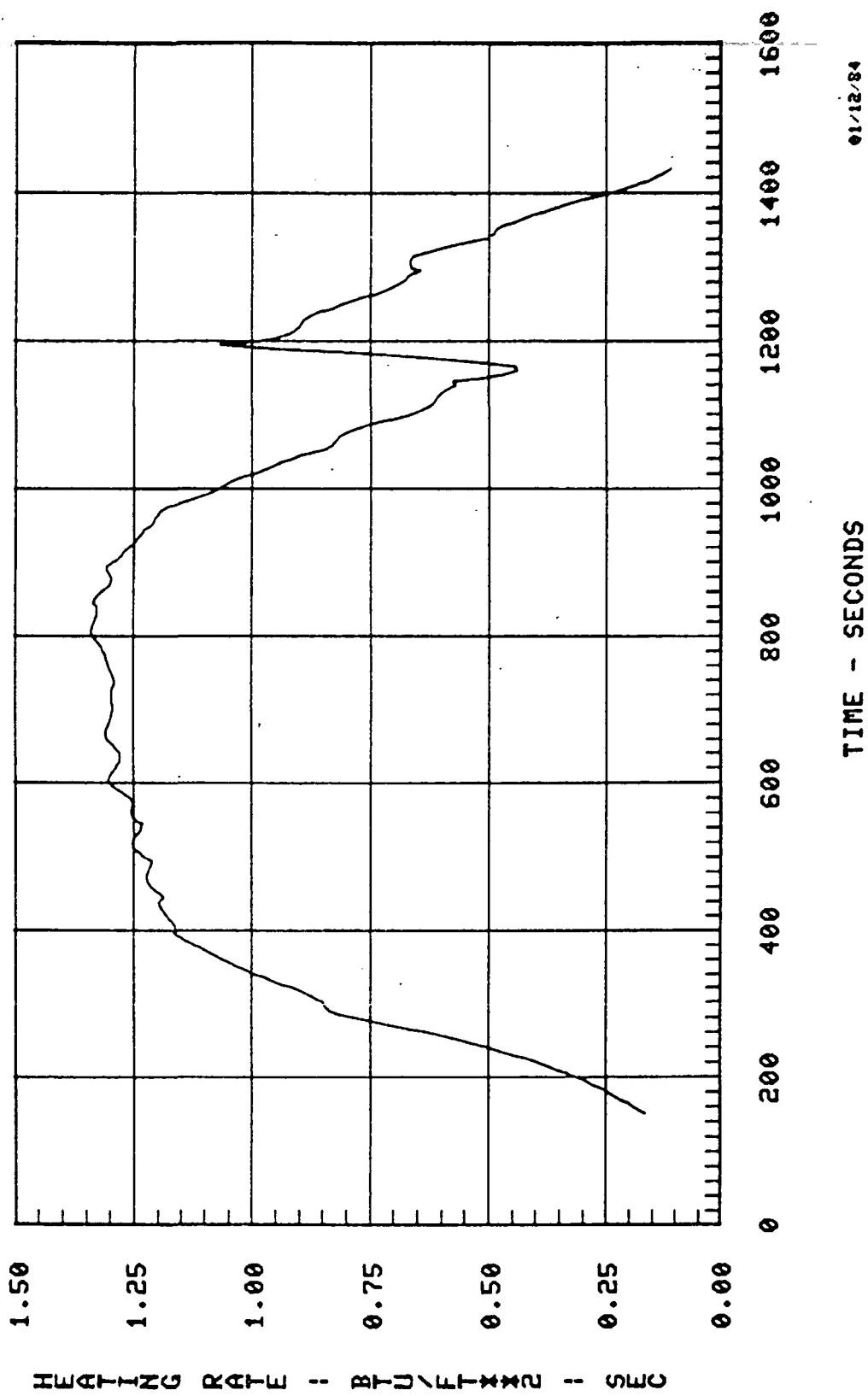
U07T9892A



01/12/84

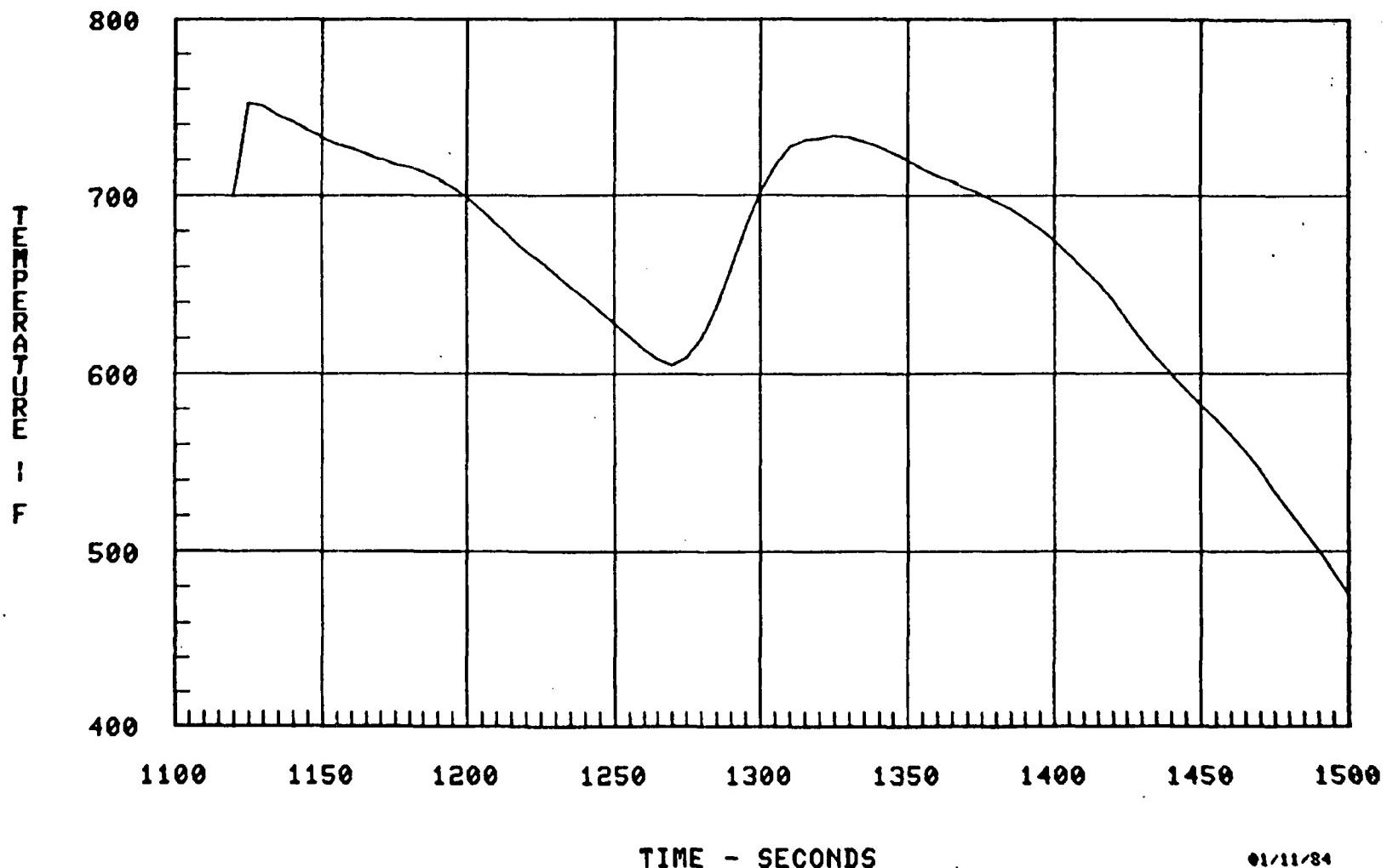
STS-5 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U9719892A



STS-1 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

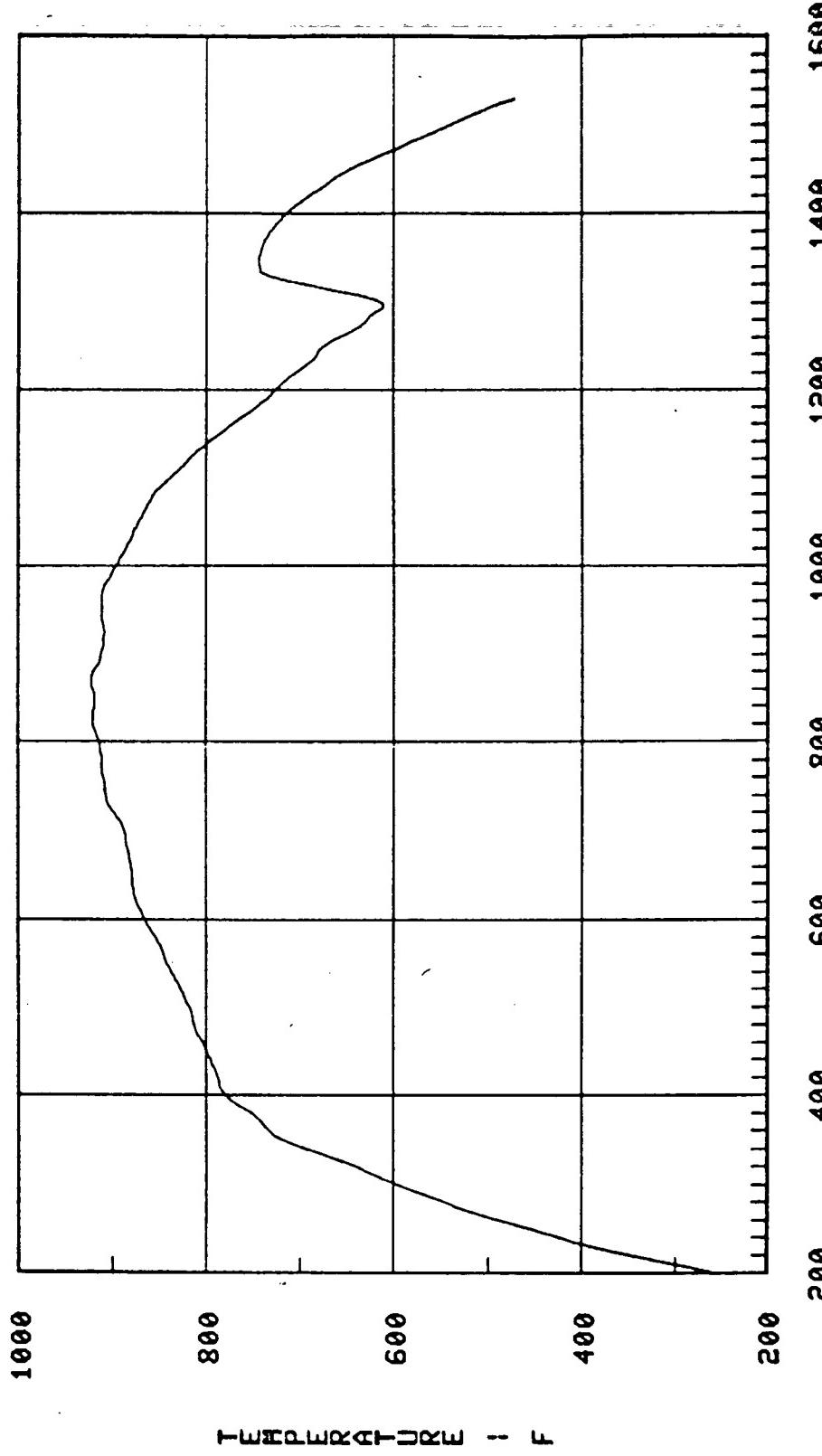
U07T9892A



01/11/84

STS-2 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U0779892A

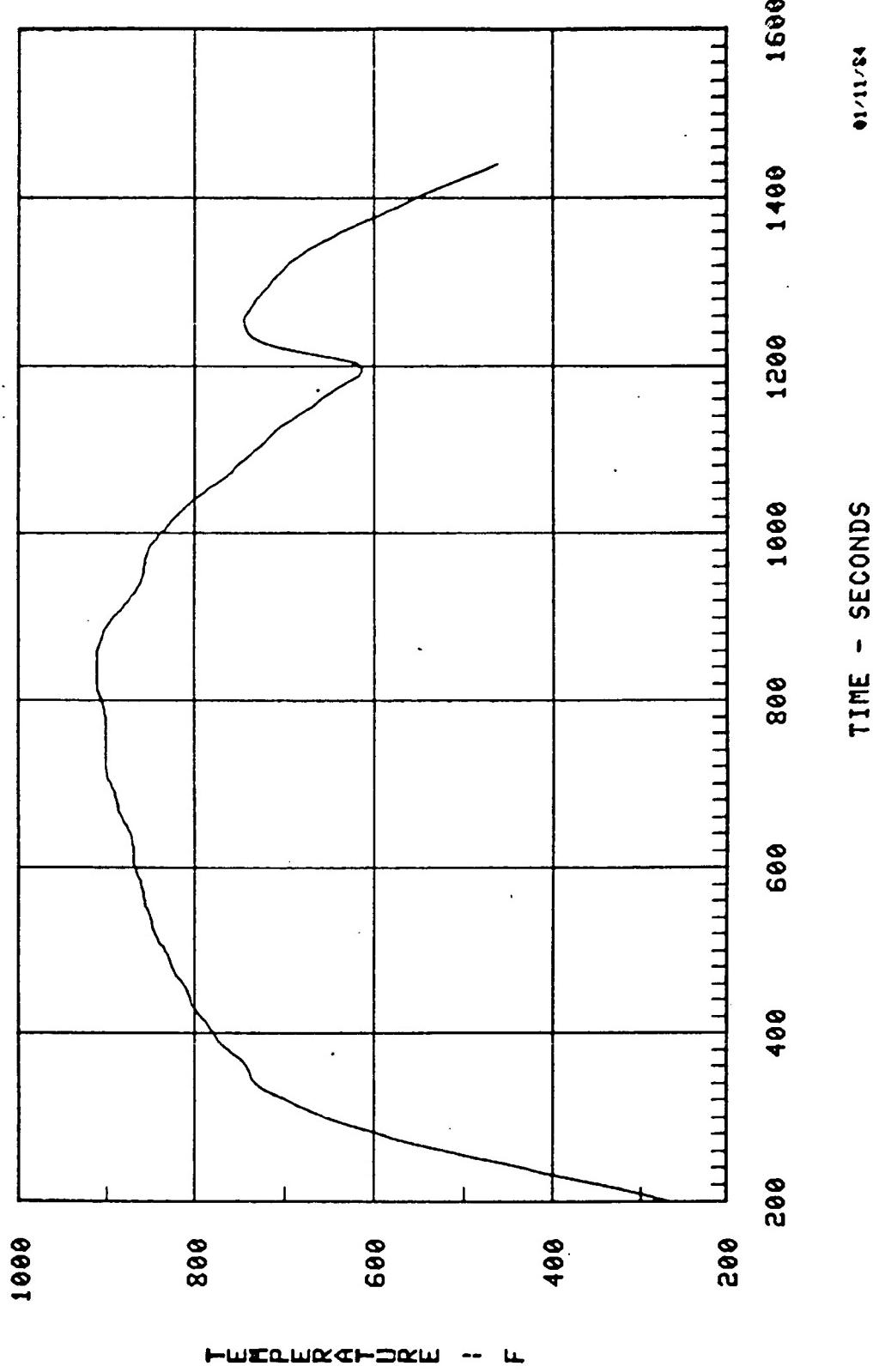


TIME - SECONDS

01/11/84

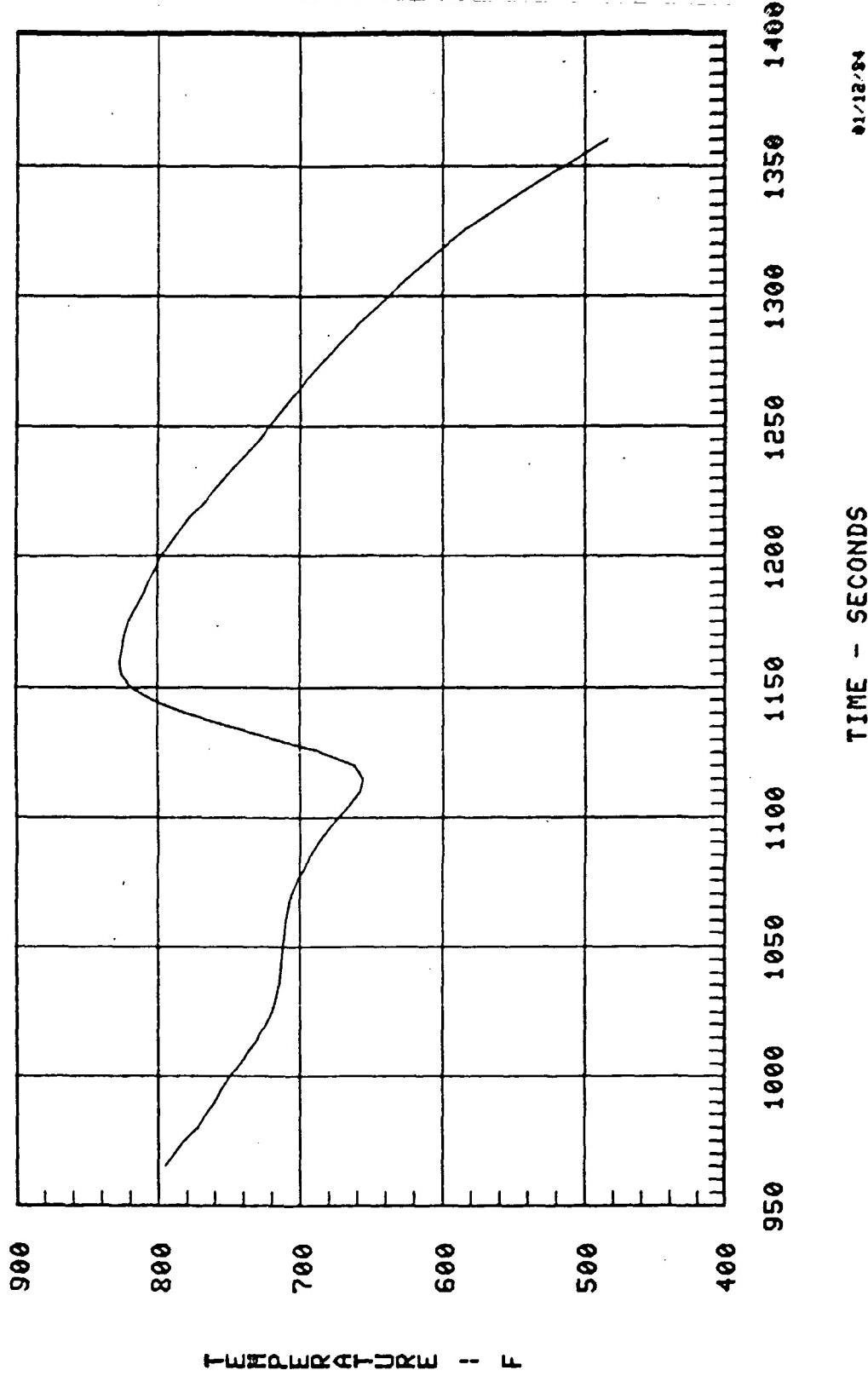
STS-3 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U07T9892A



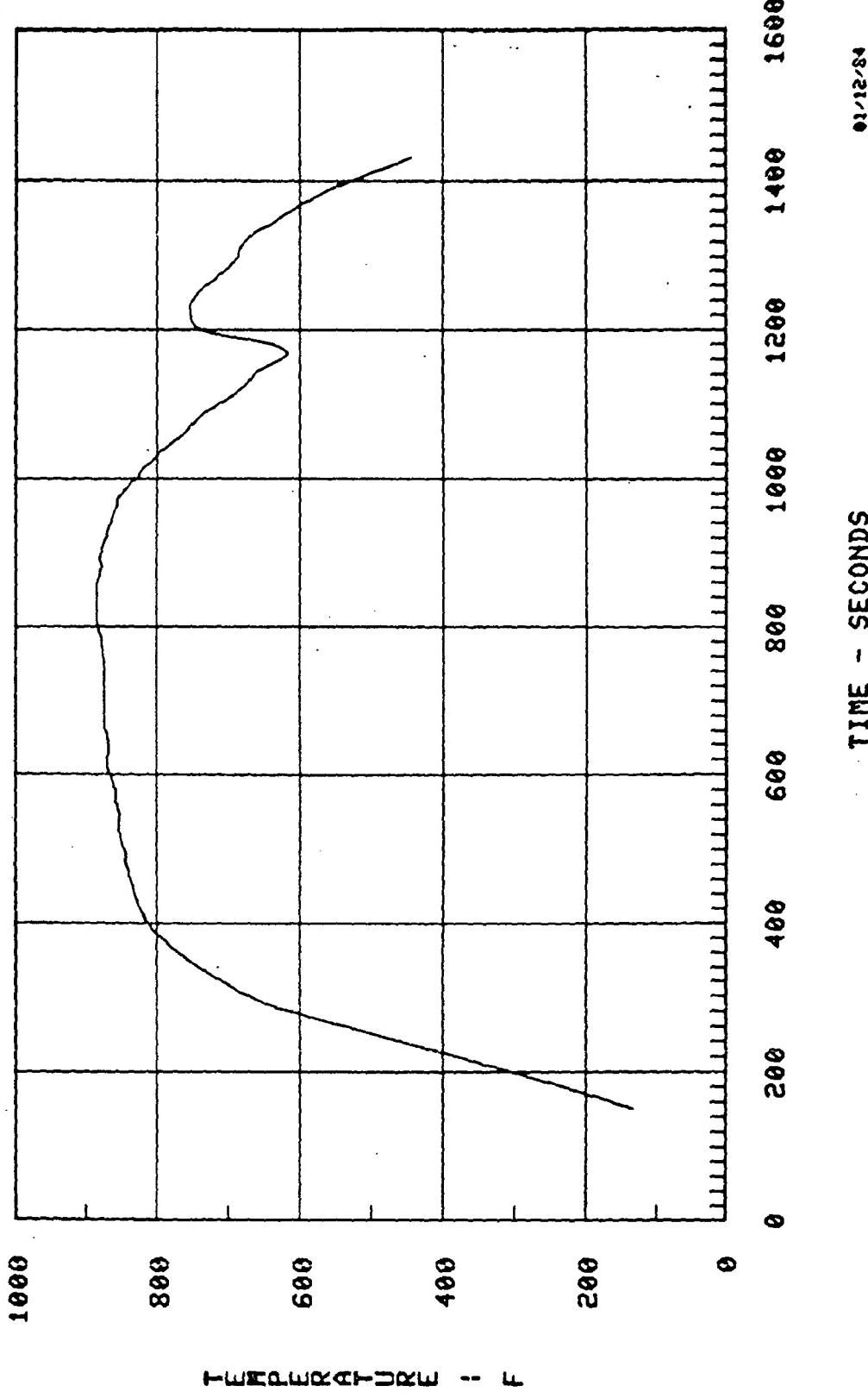
STS-4 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U6779892A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.20) Z=400

U6719892A

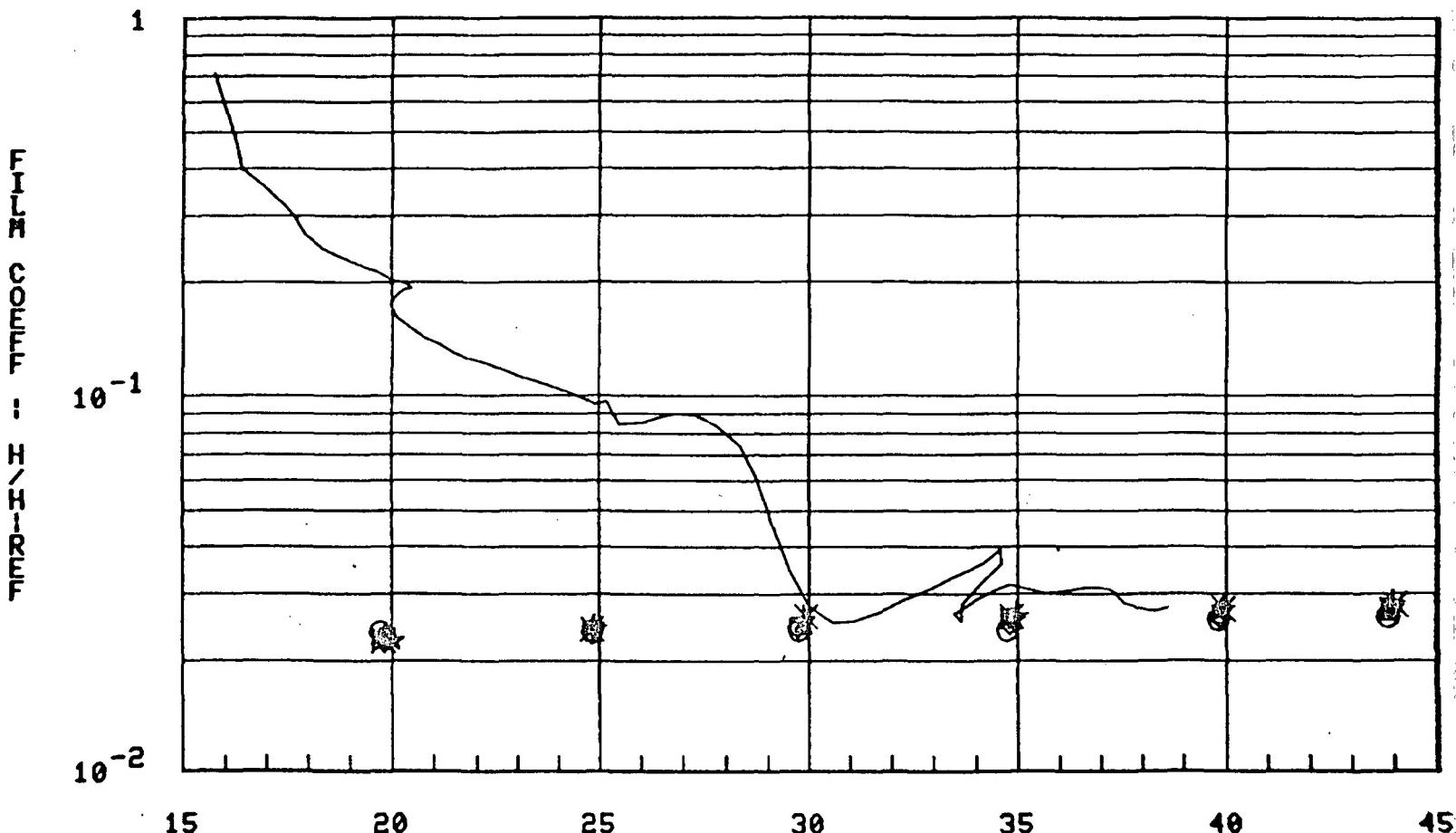


STS-1 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9916A/H-REF 1065-1500 SEC

○ ◇ △ ★ + X



ANGLE-OF-ATTACK - DEG

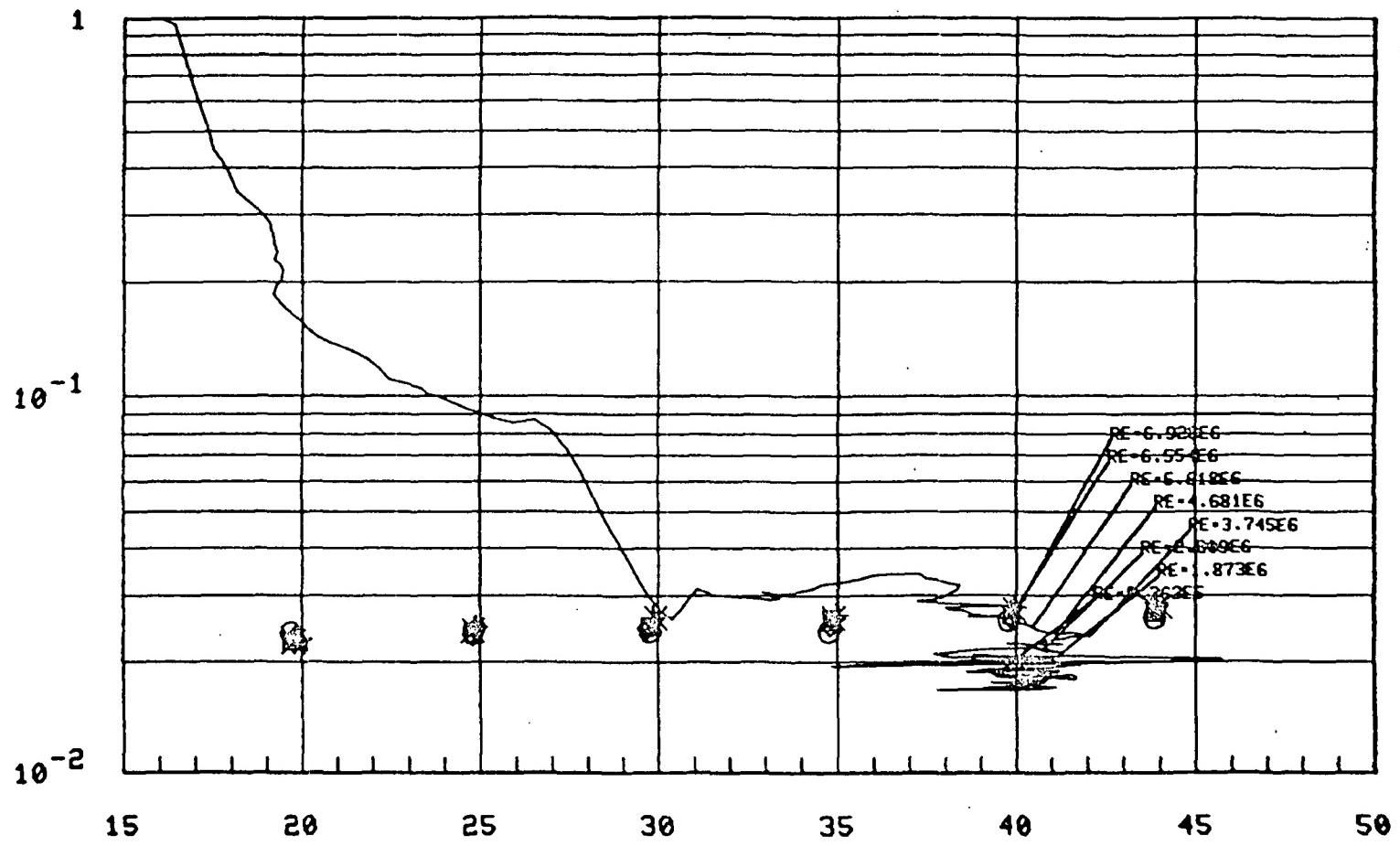
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

OH74 0.0175 SCALE RE • 0.5 E06
 OH74 0.0175 SCALE RE • 1.0 E06
 OH74 0.0175 SCALE RE • 1.5 E06
 OH74 0.0175 SCALE RE • 2.0 E06
 OH74 0.0175 SCALE RE • 2.5 E06
 OH74 0.0175 SCALE RE • 3.0 E06
 OH74 0.0175 SCALE RE • 3.5 E06
 OH74 0.0175 SCALE RE • 3.7 E06

U07T9916A/H-REF 200-1530 SEC

O ◊ △ ★ + X



B-27

ANGLE-OF-ATTACK - DEG

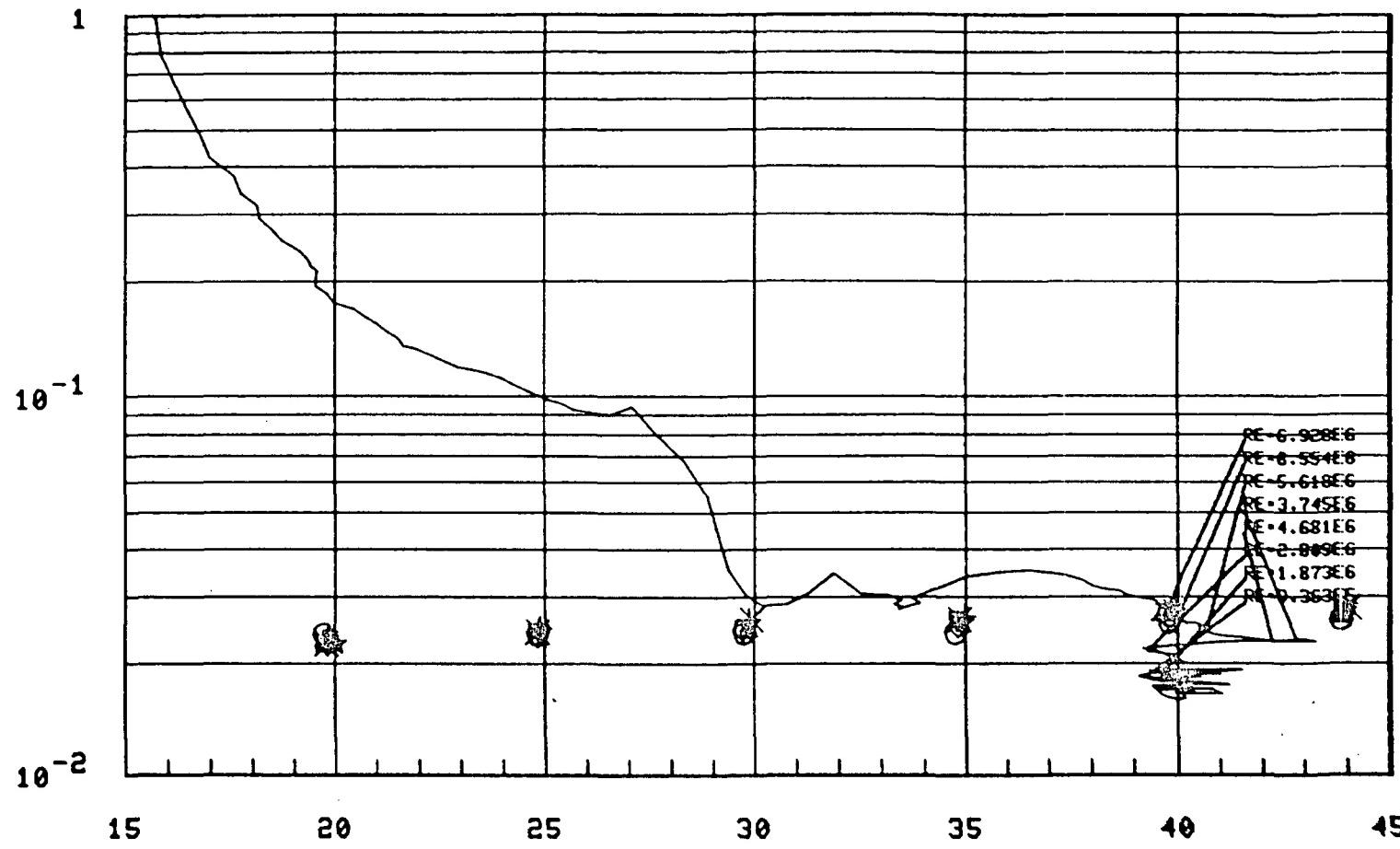
01/11/84
BASE TIME • 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9916A/H-REF 200-1440 SEC

○ □ ◇ △ ★ + ×

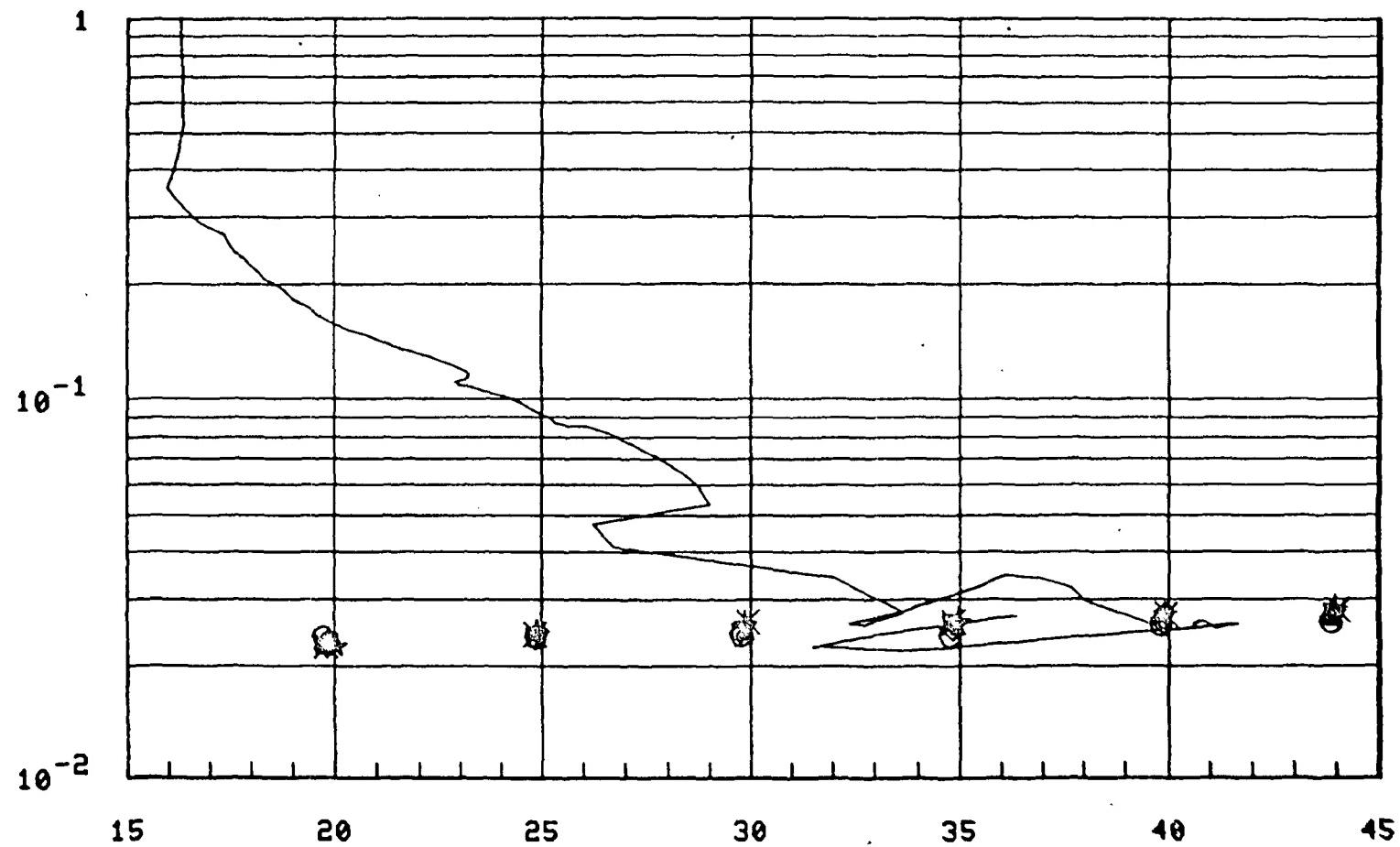


STS-4 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U07T9916A/H-REF 965-1360 SEC

○□◇△★+



B-29

LINE DRAWING - H\H\H\H\H\H

ANGLE-OF-ATTACK - DEG

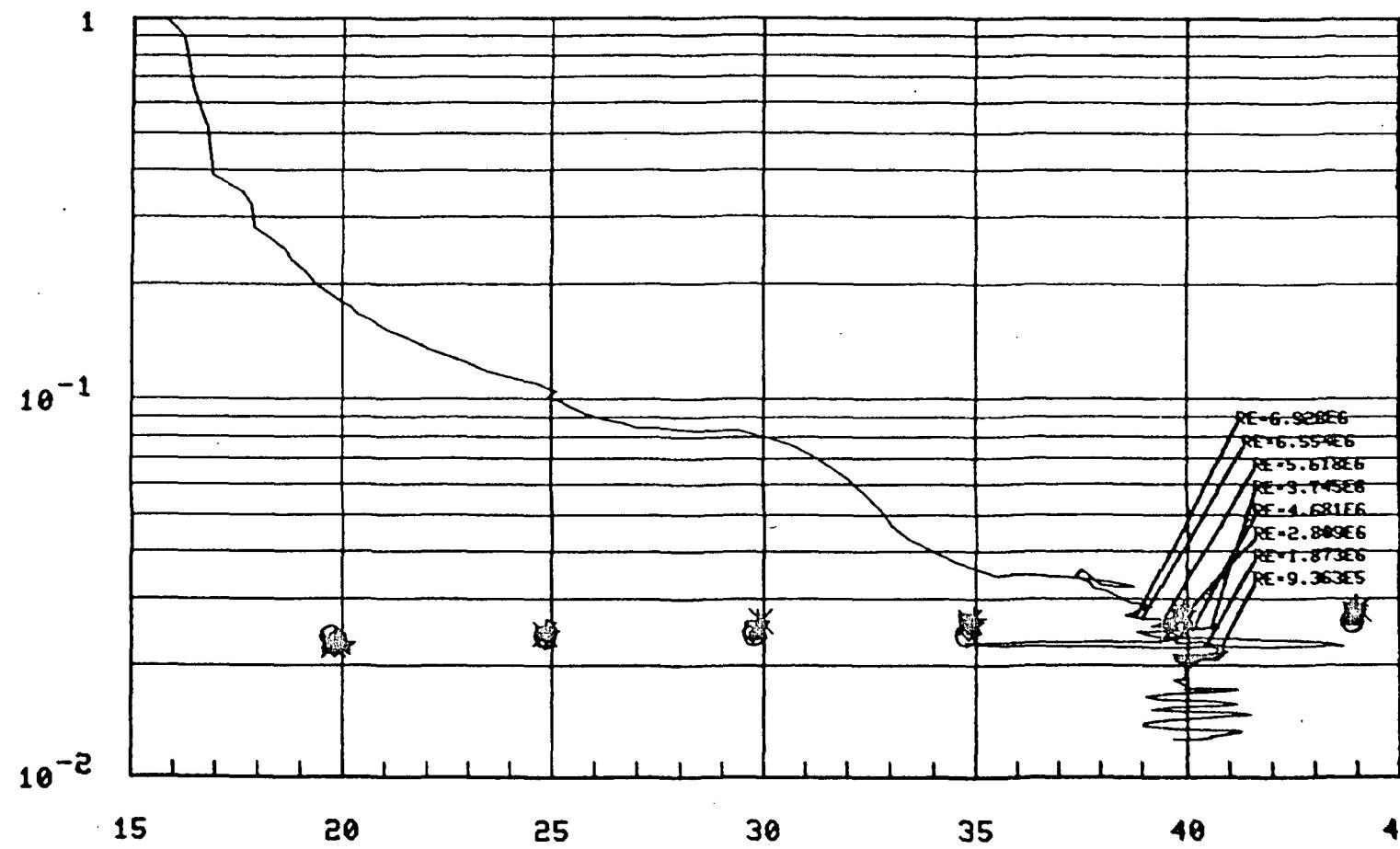
01/12/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

□◆◇△★×

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9916A/H-REF 150-1430 SEC



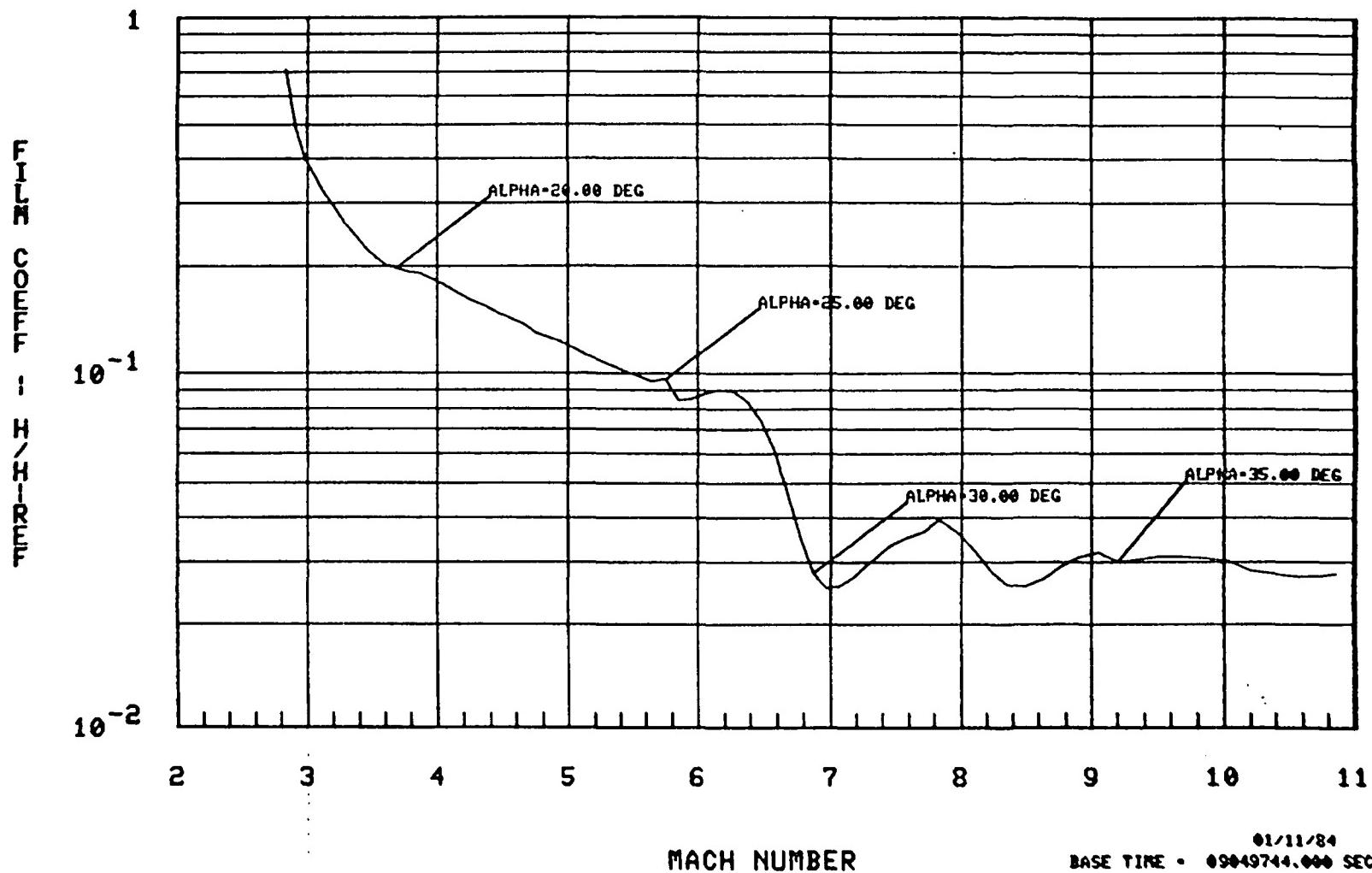
B-30

ANGLE-OF-ATTACK - DEG

01/12/84
 BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

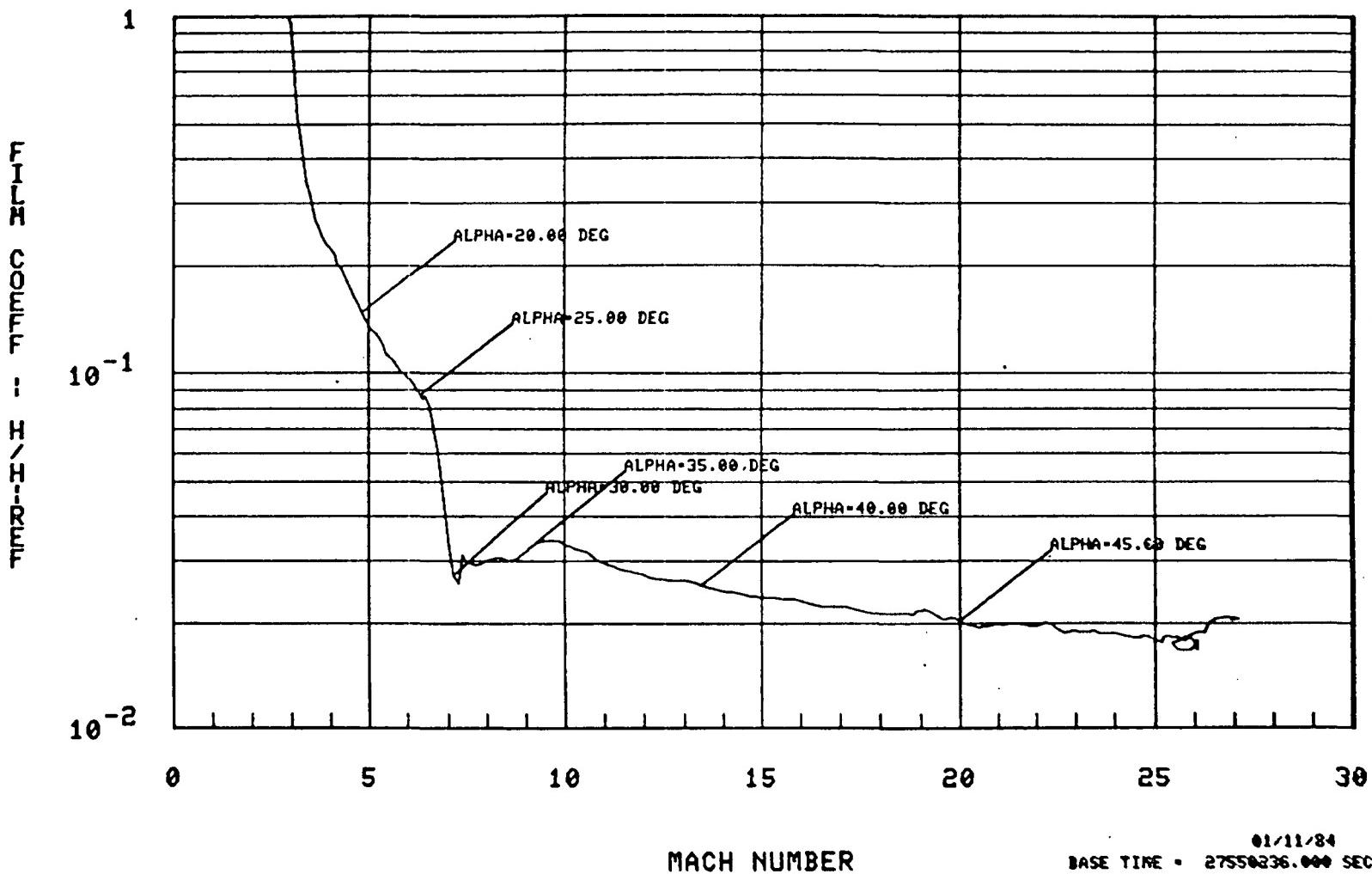
U07T9916A/H-REF 1065-1500 SEC



01/11/84
BASE TIME • 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

U07T9916A/H-REF 200-1530 SEC



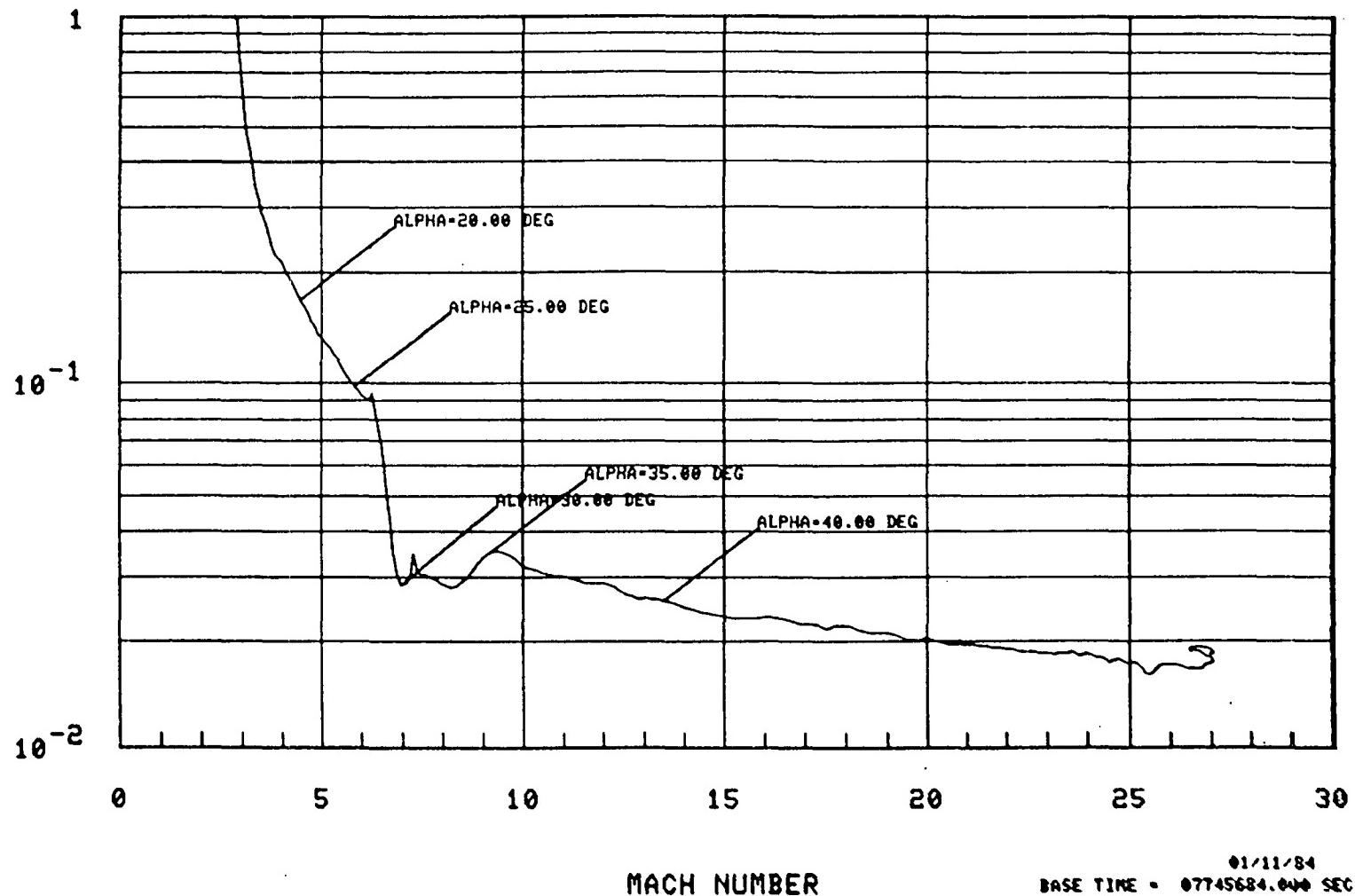
01/11/84
BASE TIME = 27550336.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

U07T9916A/H-REF 200-1440 SEC

LINE DRAWINGS : H\H\H\H\H\H\H\H

B-33

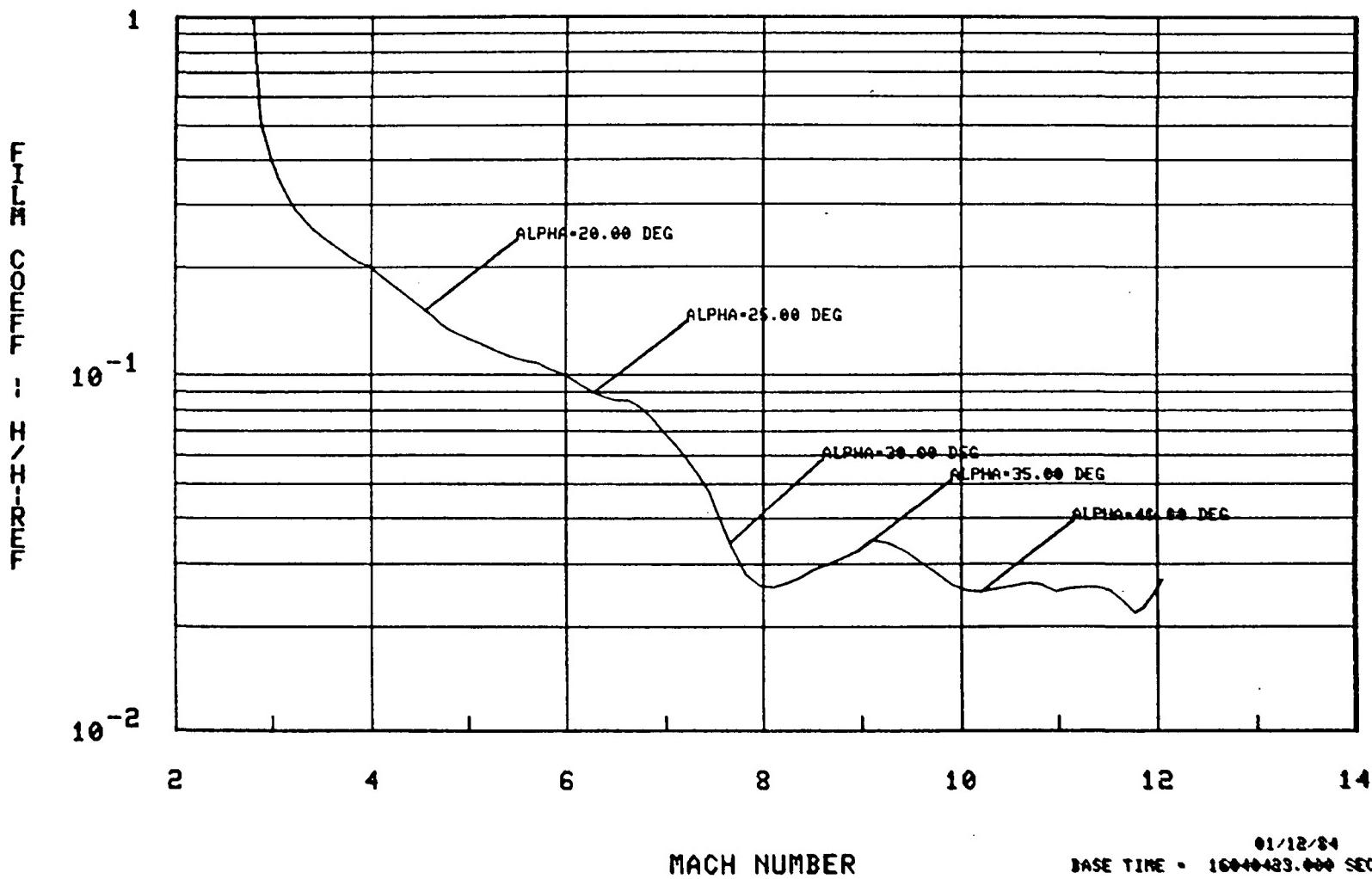


MACH NUMBER

01/11/84
BASE TIME = 07745684.040 SEC.

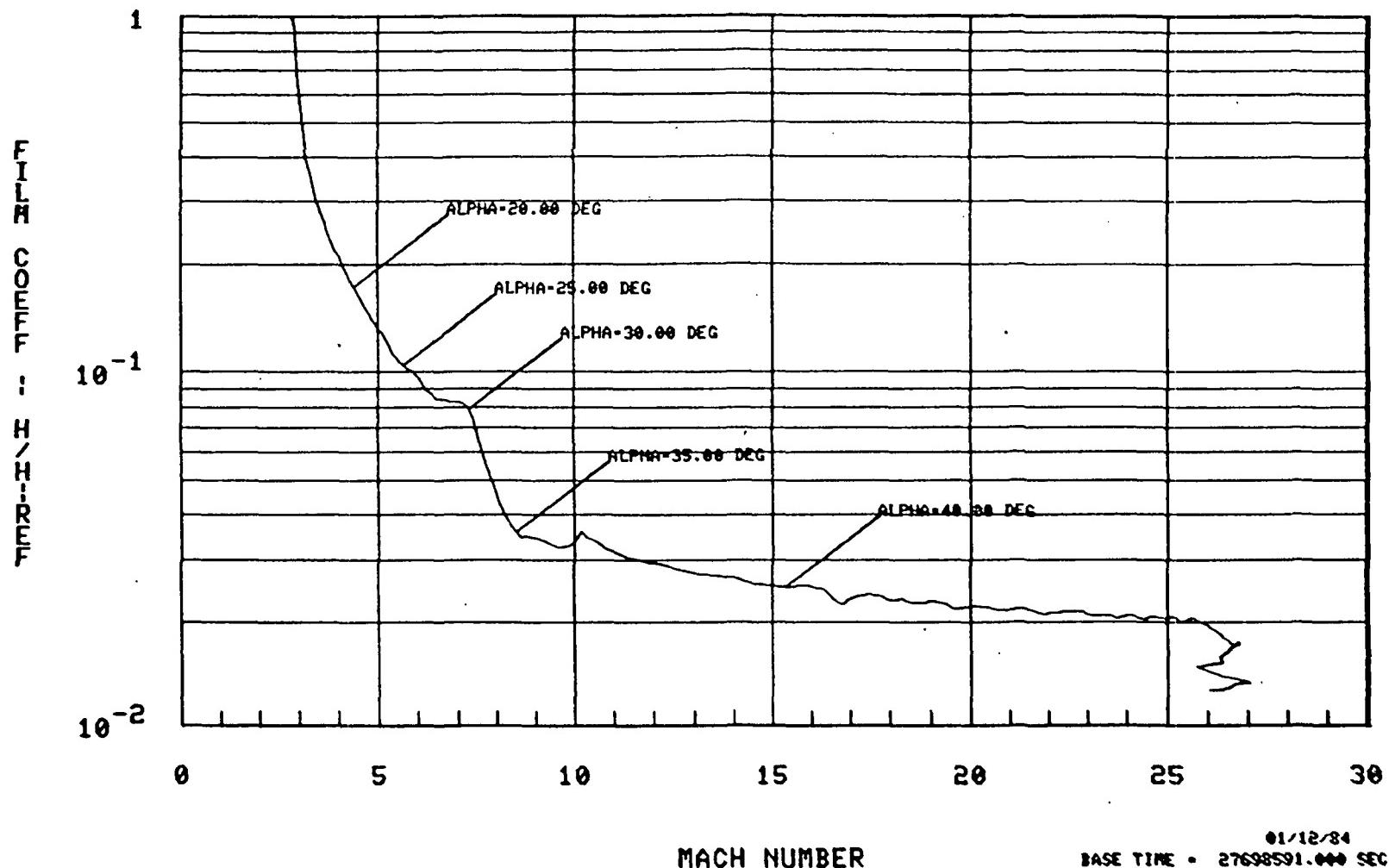
STS-4 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

U07T9916A/H-REF 965-1360 SEC



STS-5 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

U07T9916A/H-REF 150-1430 SEC



B-35

MACH NUMBER

01/12/84
BASE TIME = 27698591.000 SEC.

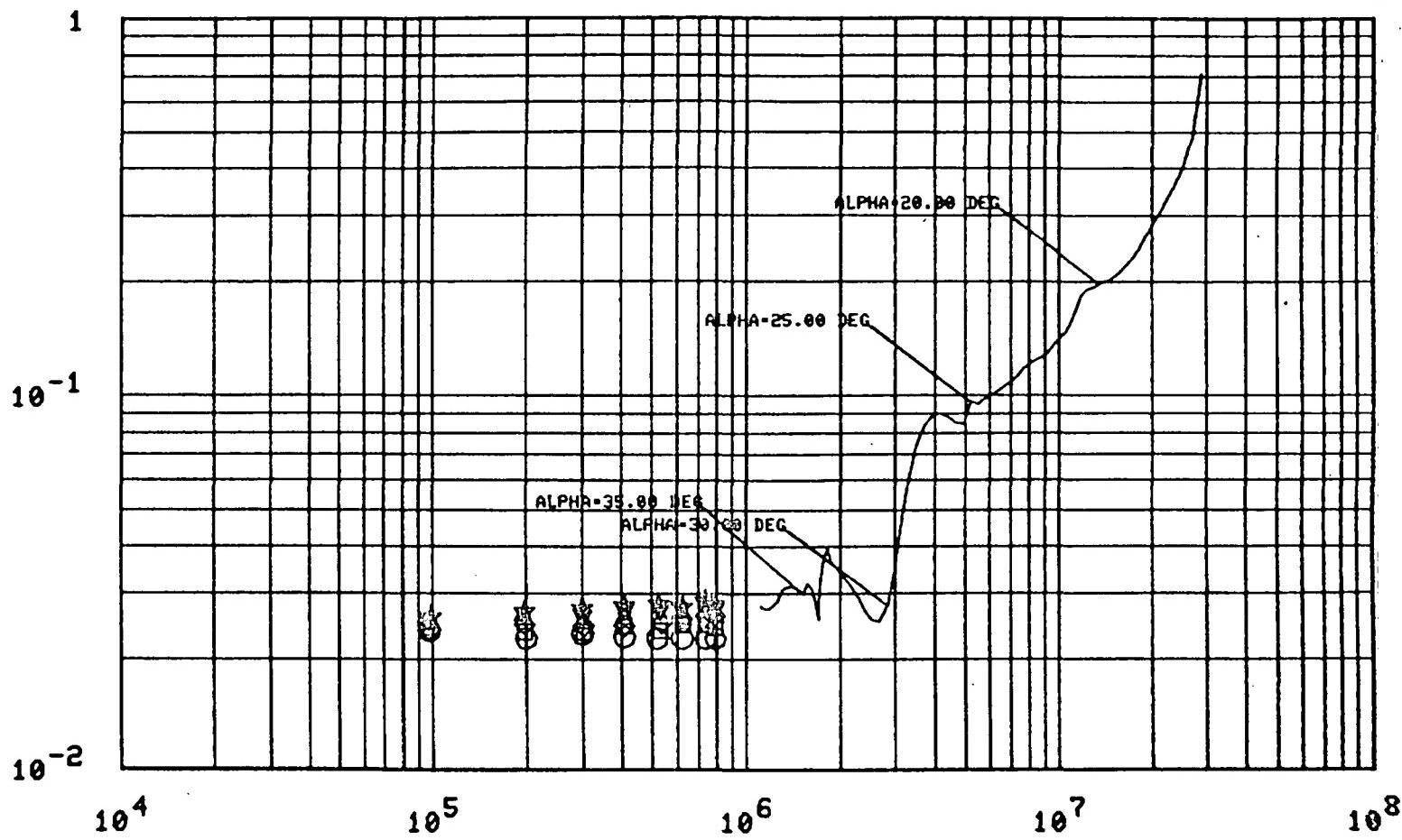
STS-1 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9916A/H-REF 1065-1500 SEC

DATA SOURCE -- H/H-AWML



REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

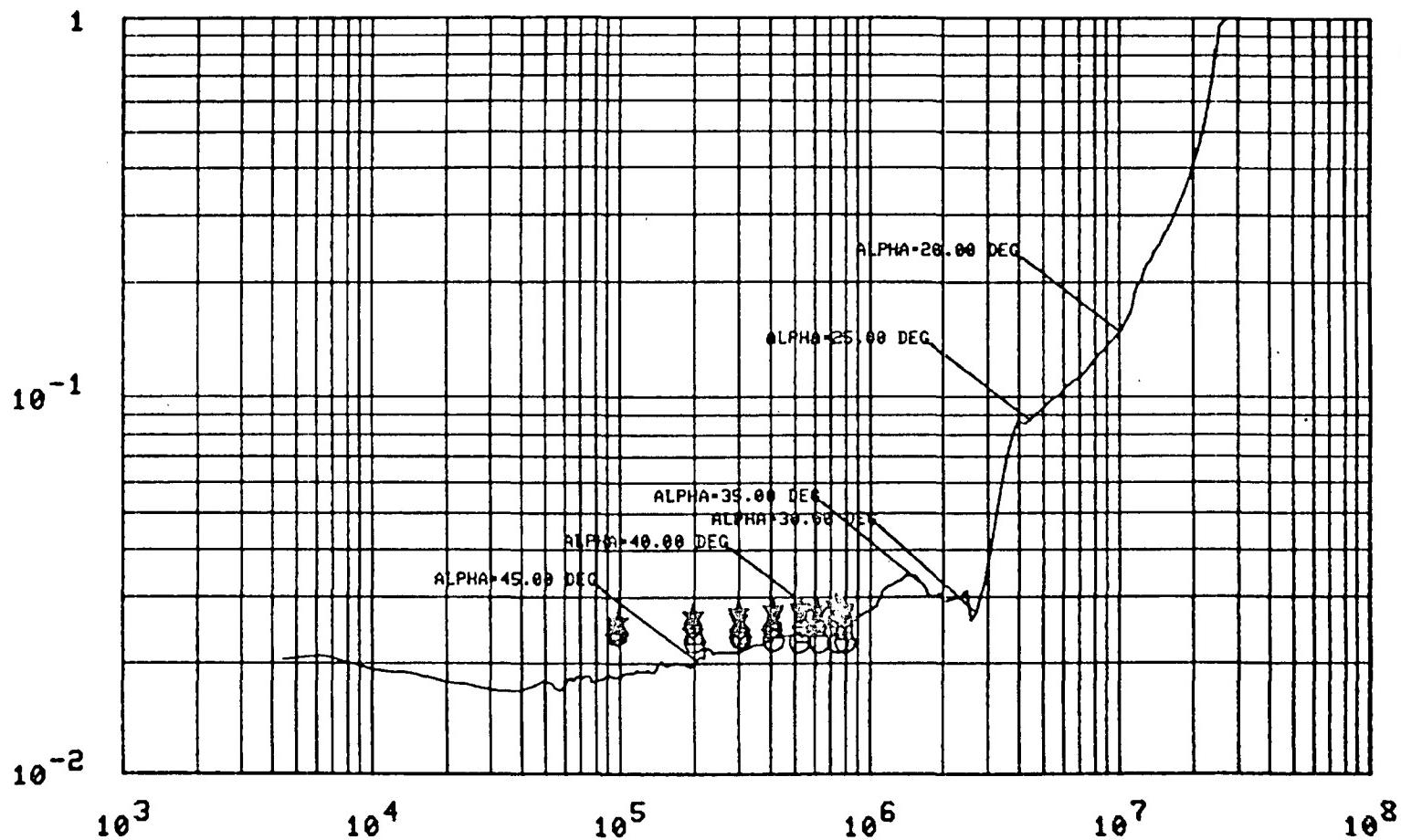
○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9916A/H-REF 200-1530 SEC

LINE COMPT - H\H--RML

B-37



REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

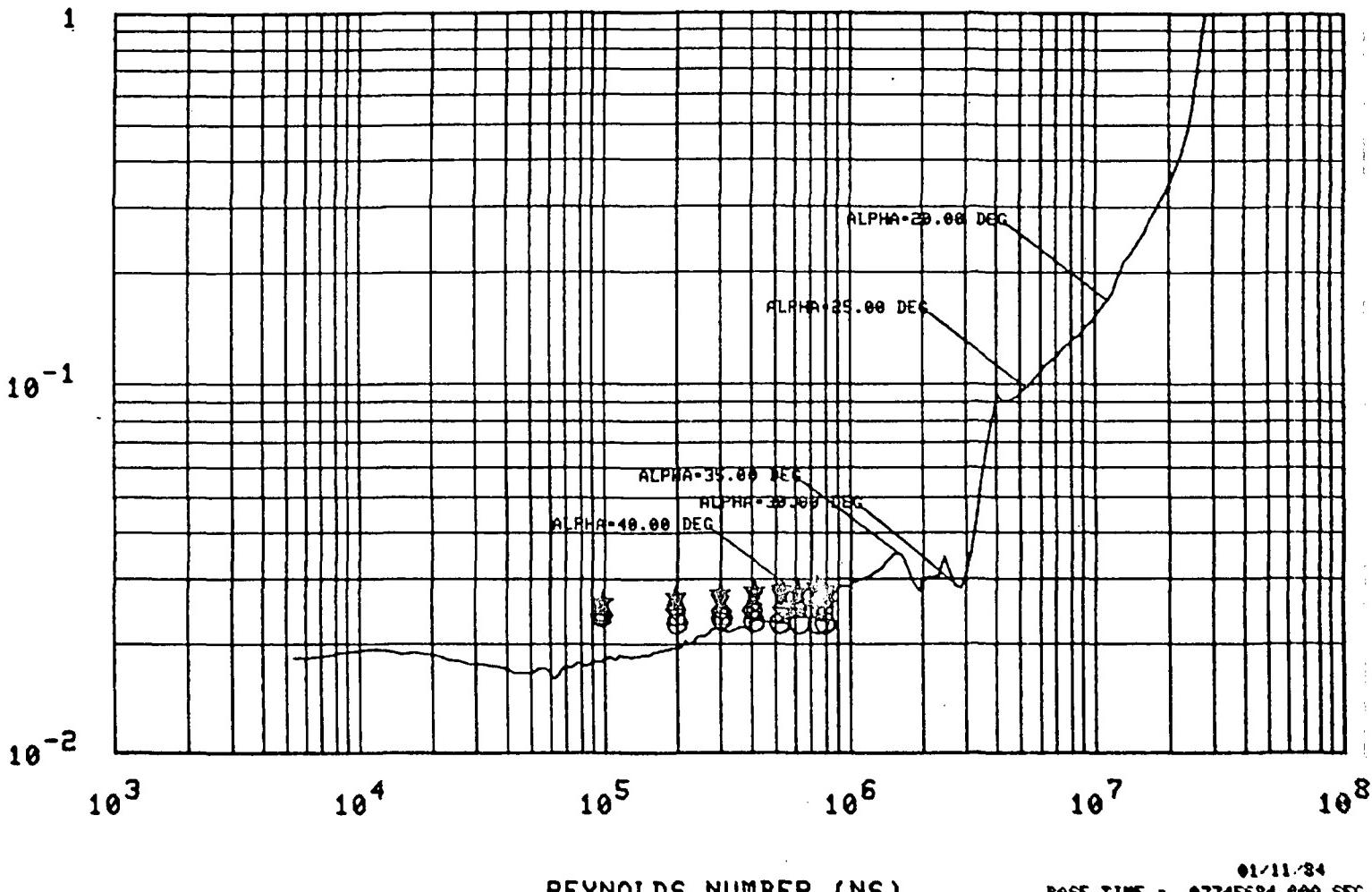
○ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9916A/H-REF 200-1440 SEC

FILM COEFF - H/H-REF

B-38



REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.000 SEC.

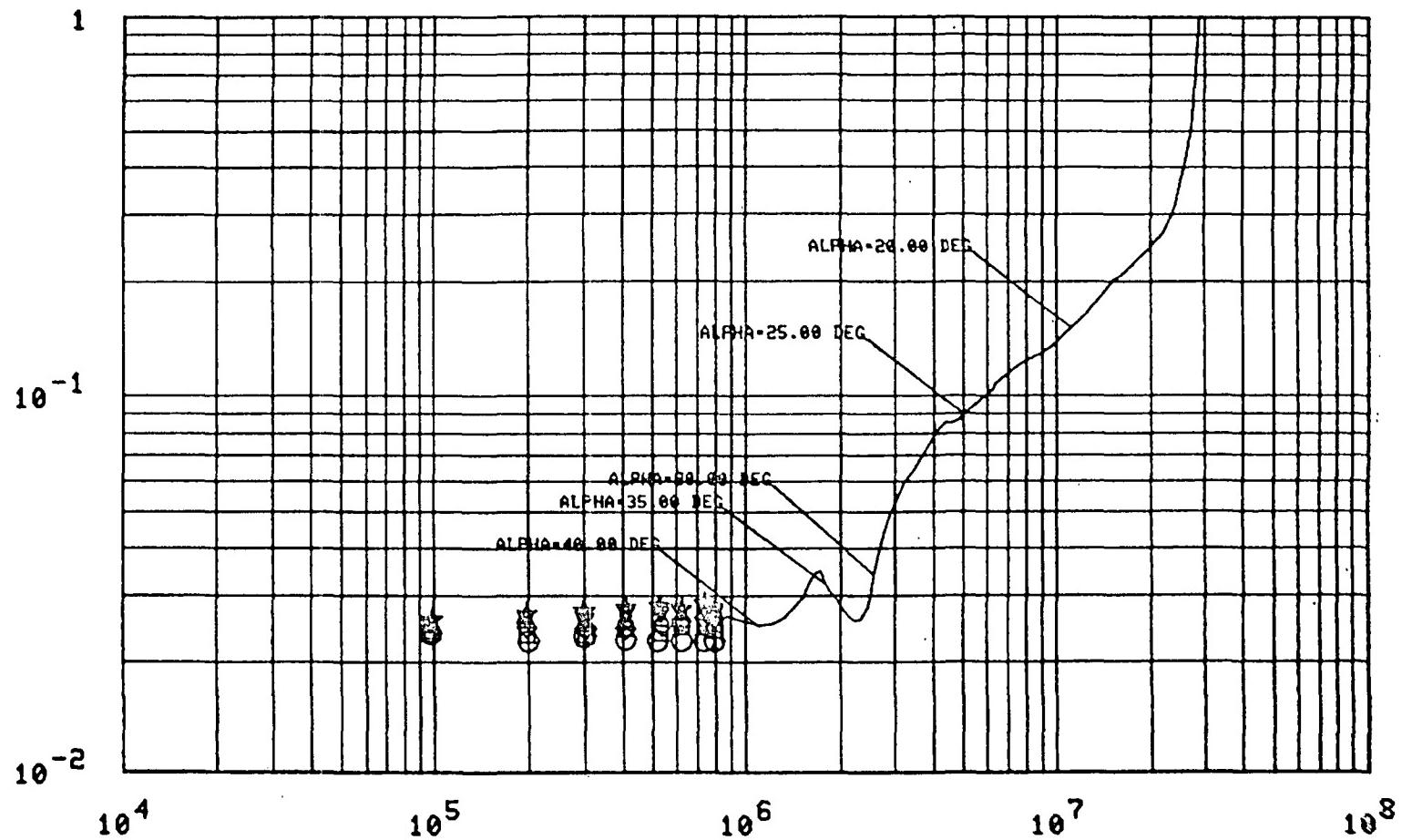
STS-4 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9916A/H-REF 965-1360 SEC



LINE CODES - H\H---RWW



REYNOLDS NUMBER (NS)

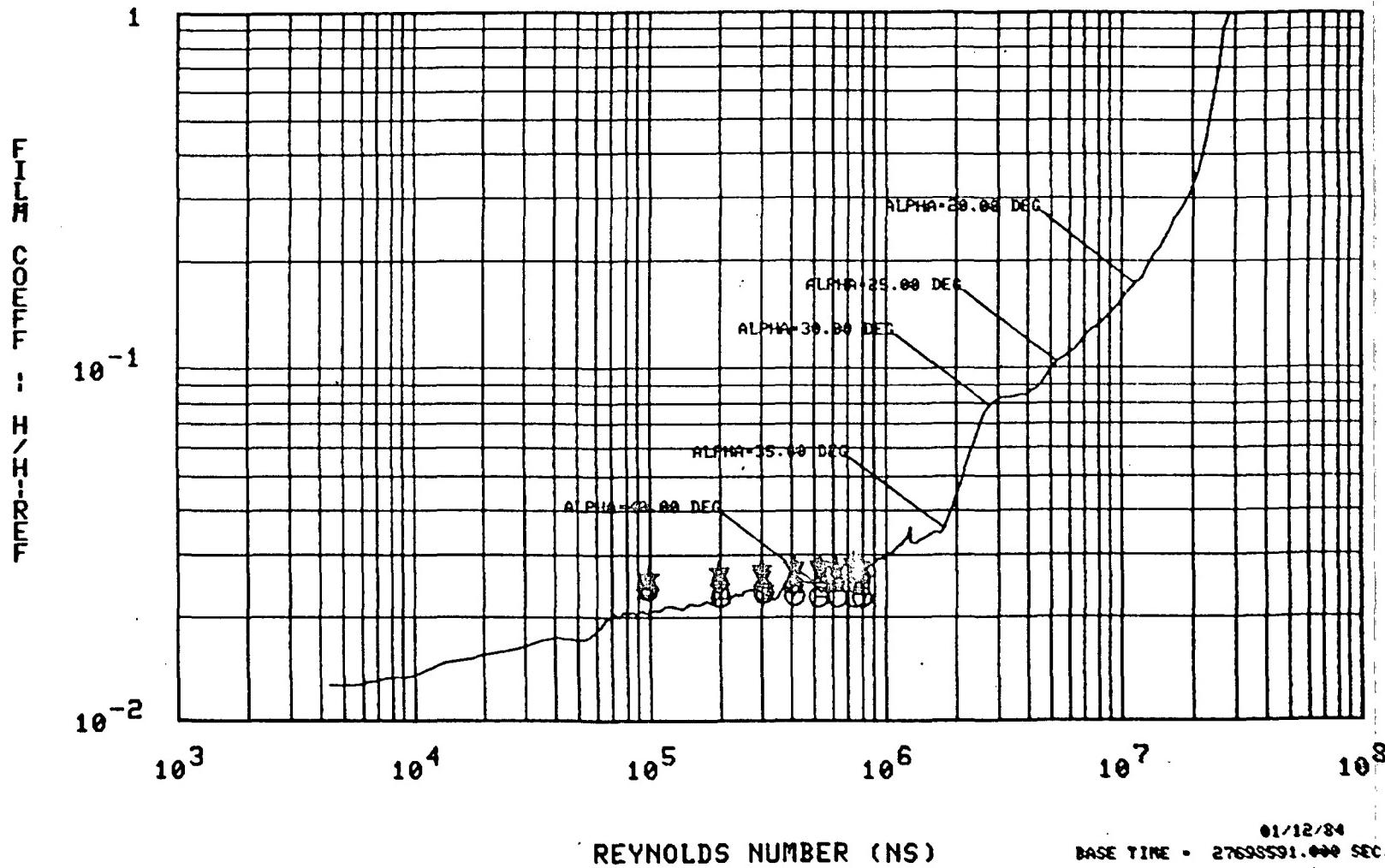
01/18/S4
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

○□◇◆▼★

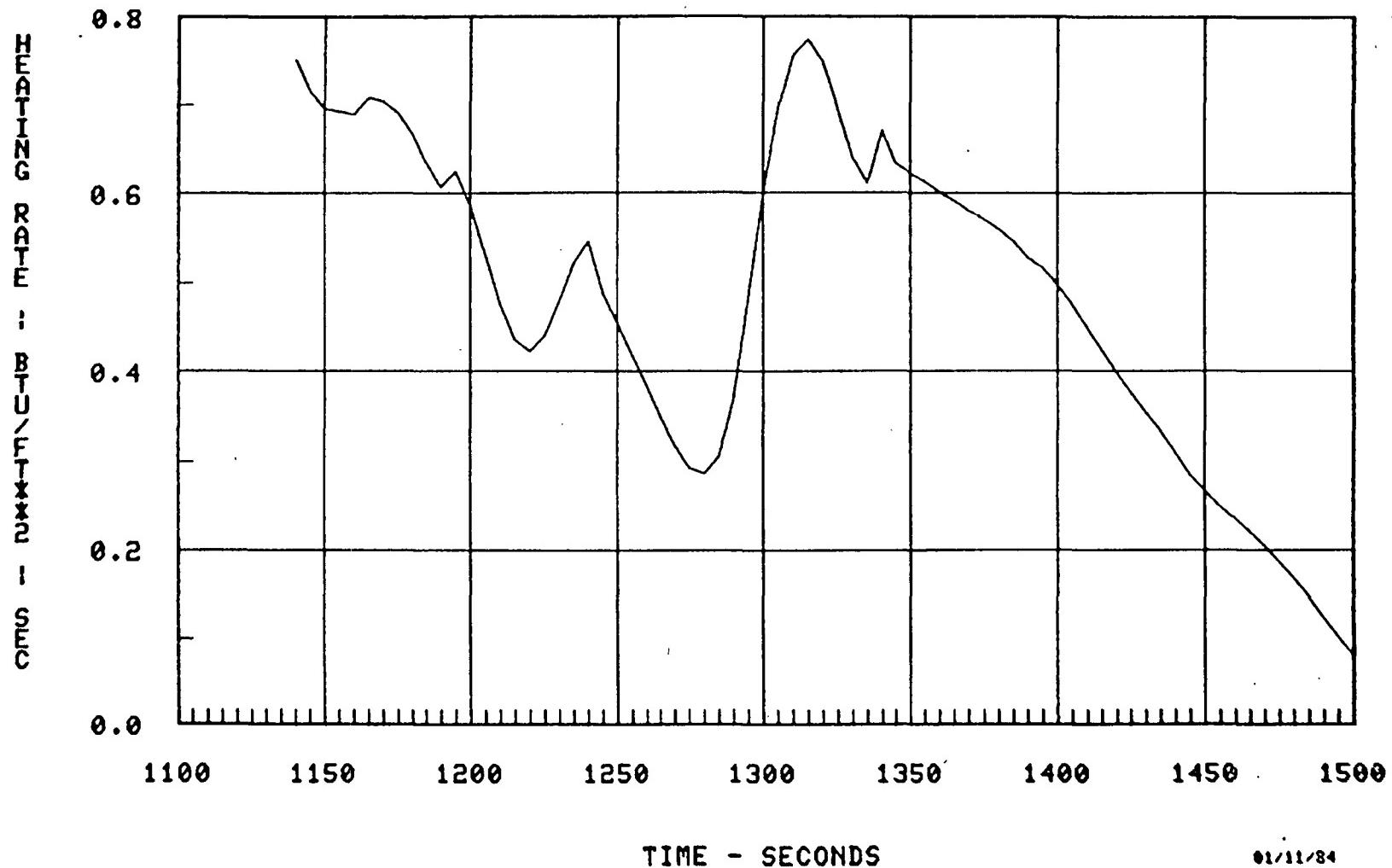
OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9916A/H-REF 150-1430 SEC



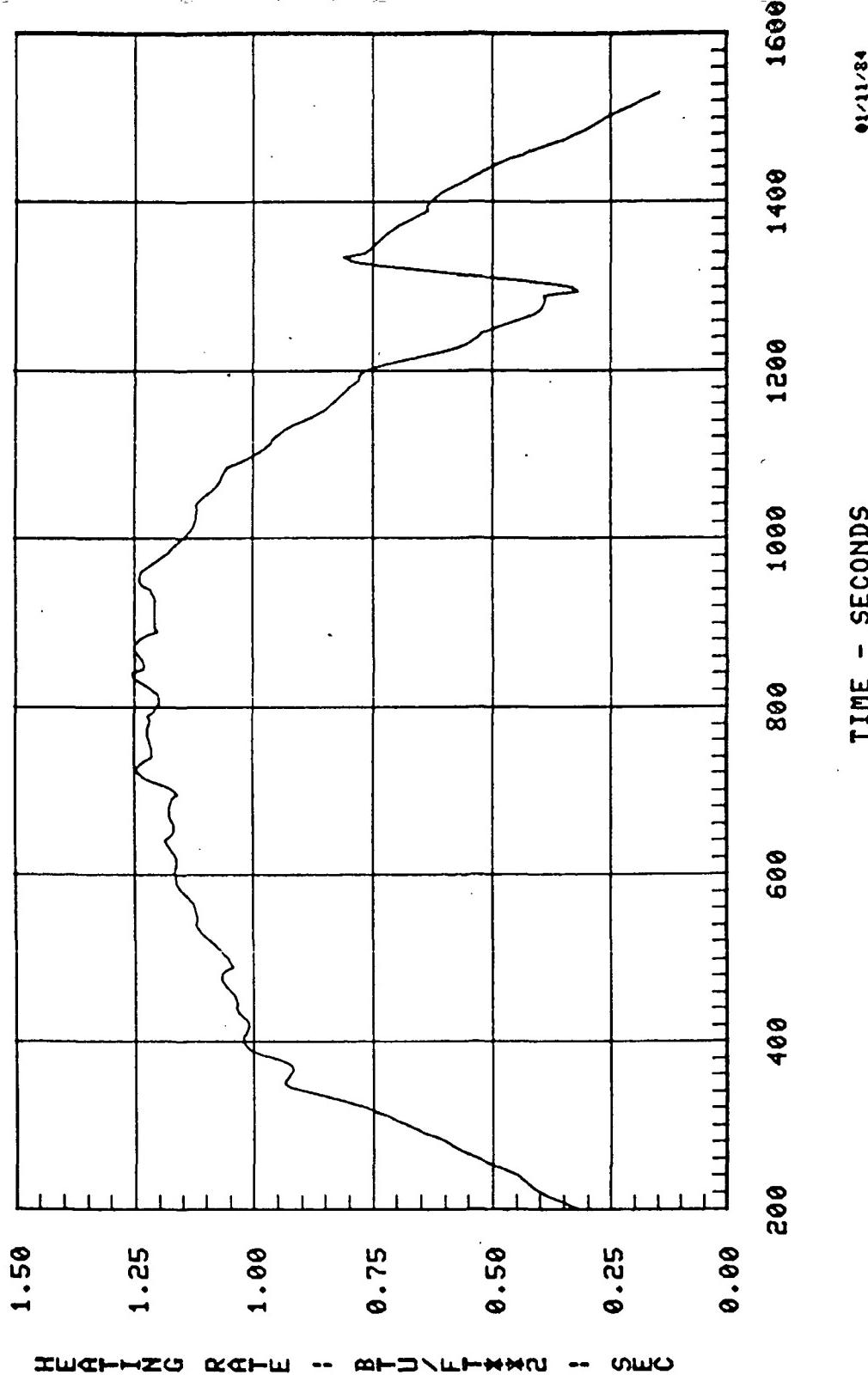
STS-1 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

U07T9916A



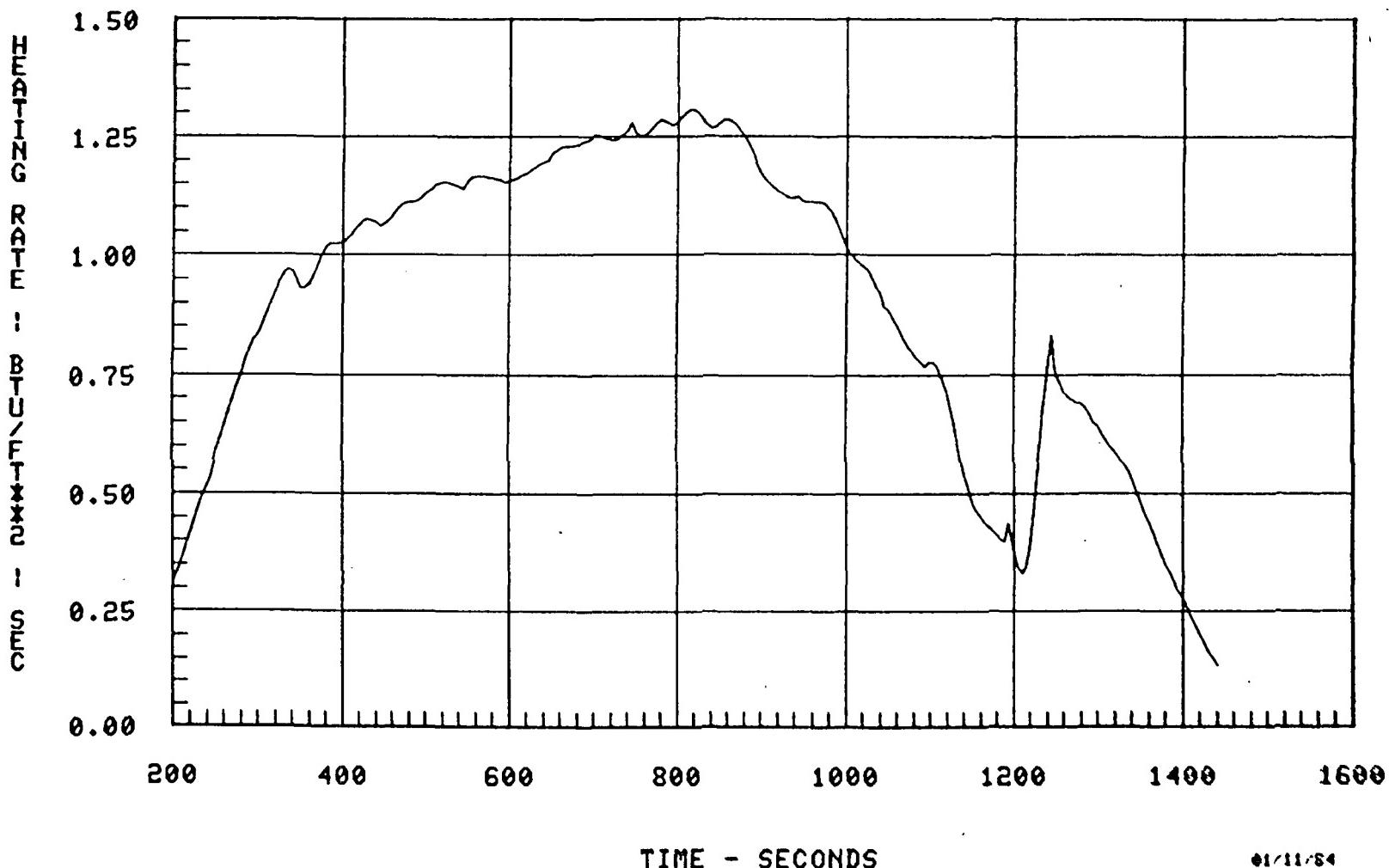
STS-2 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

0079916A



STS-3 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

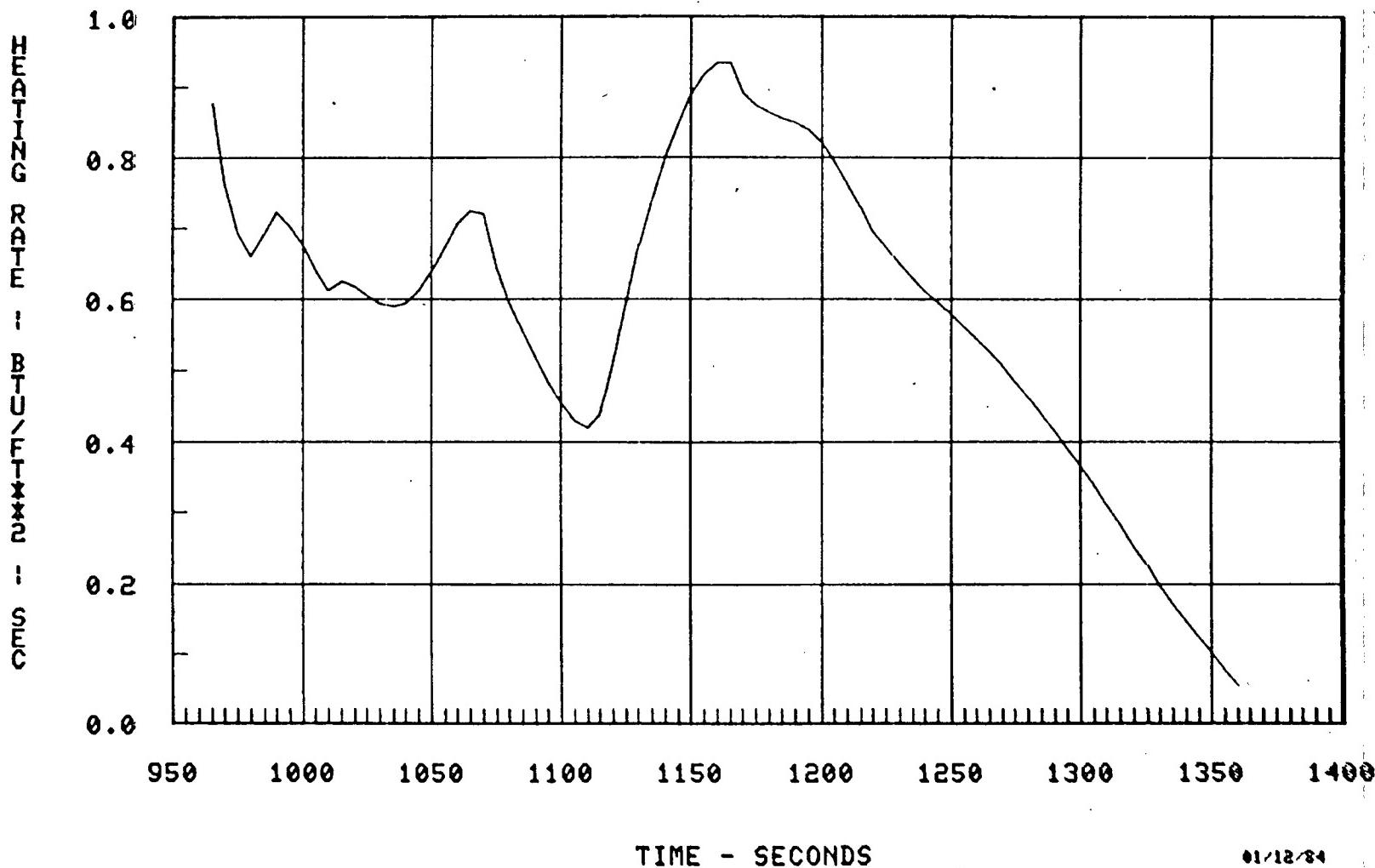
U07T9916A



61/11/84

STS-4 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

U07T9916A

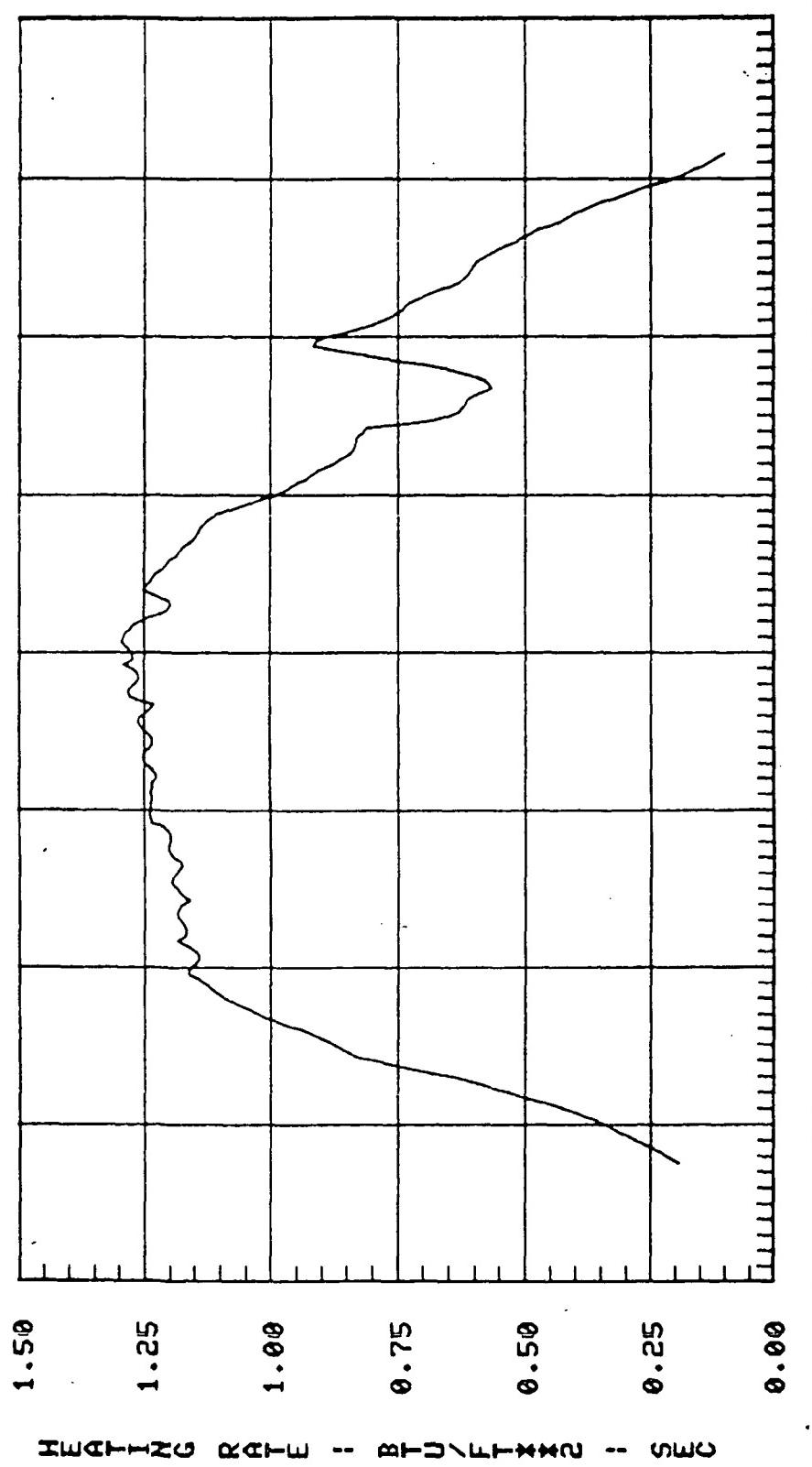


TIME - SECONDS

01/12/84

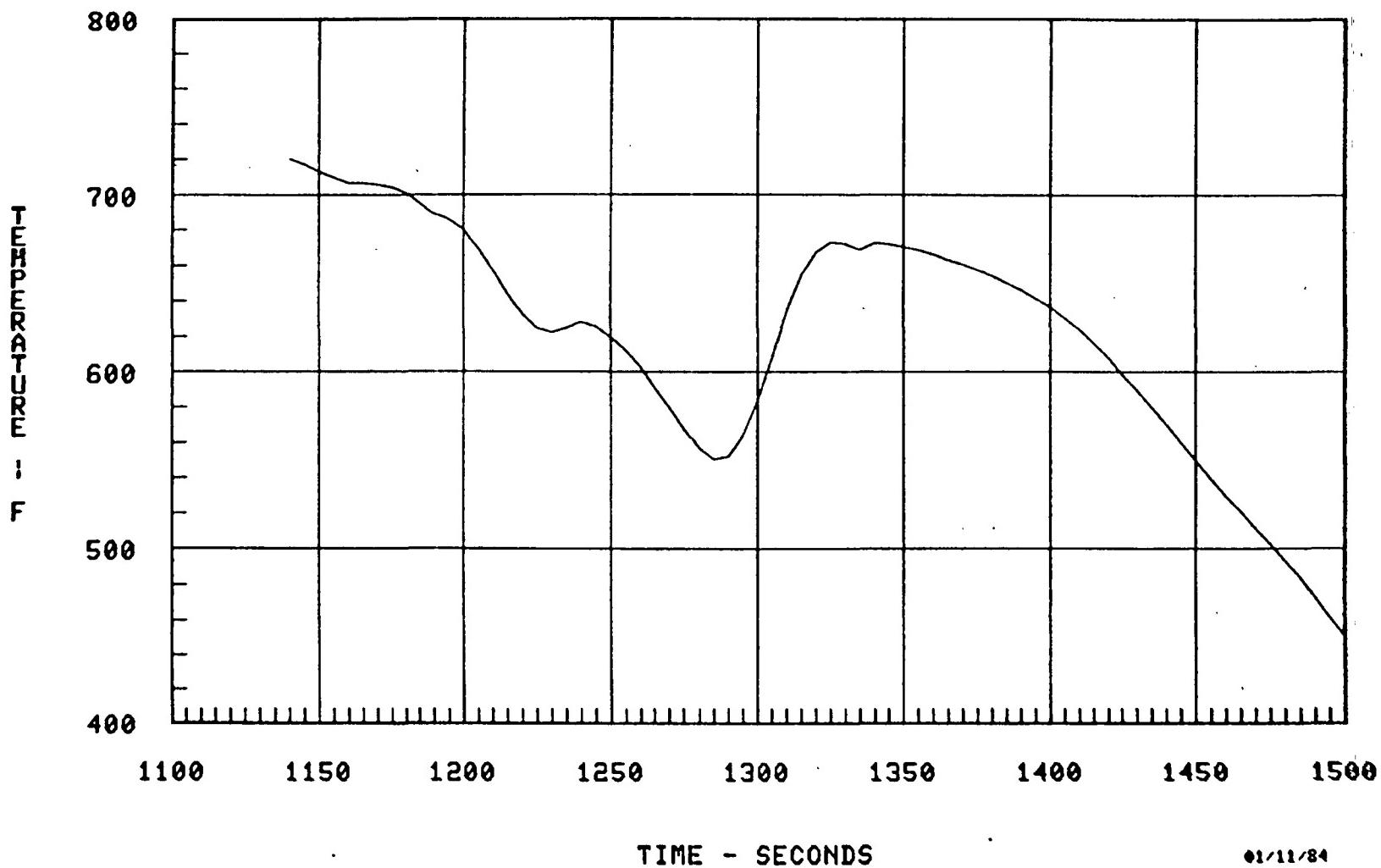
STS-5 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

087T9916A



STS-1 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

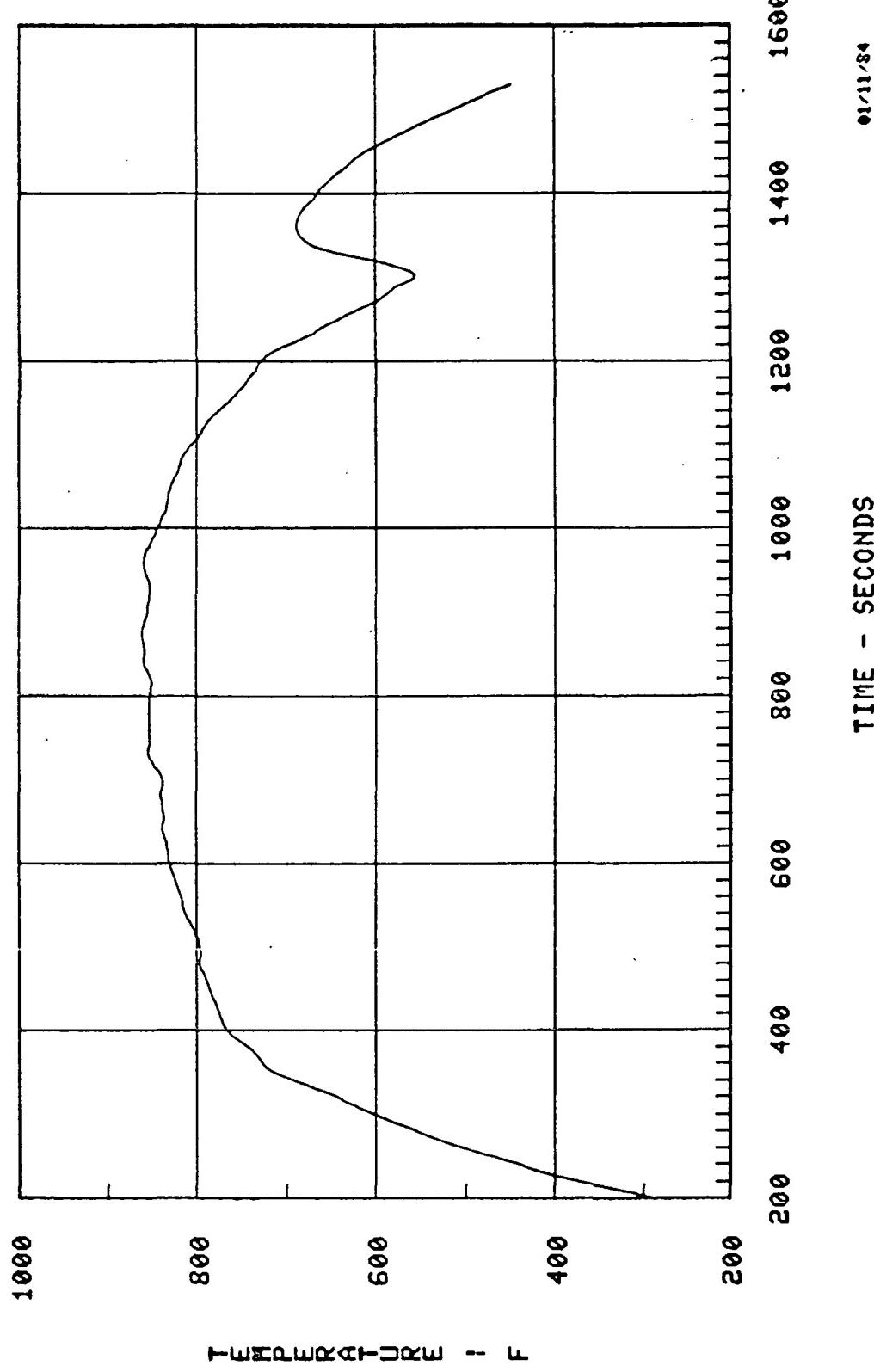
U07T9916A



01/11/84

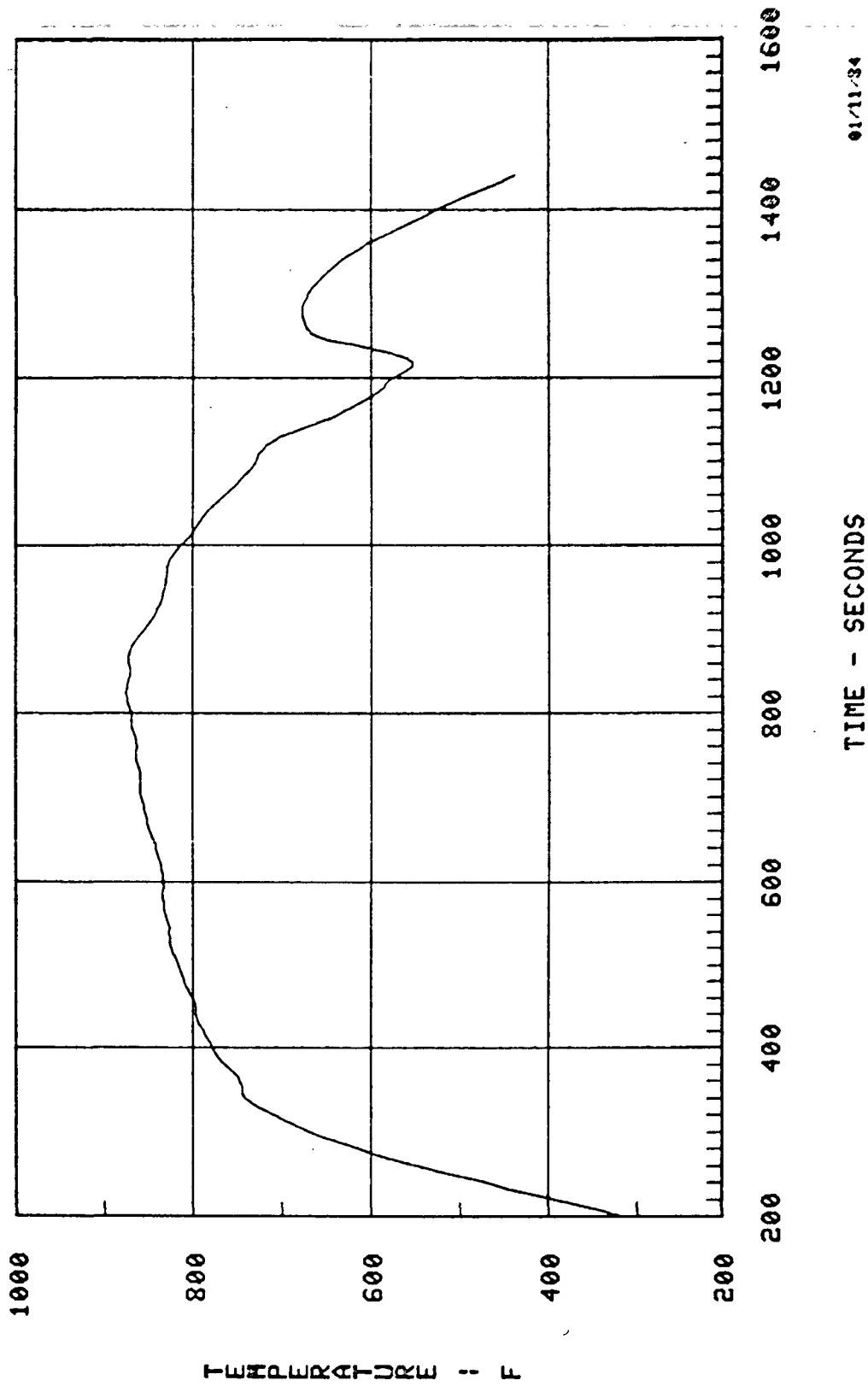
STS-2 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

48779916A



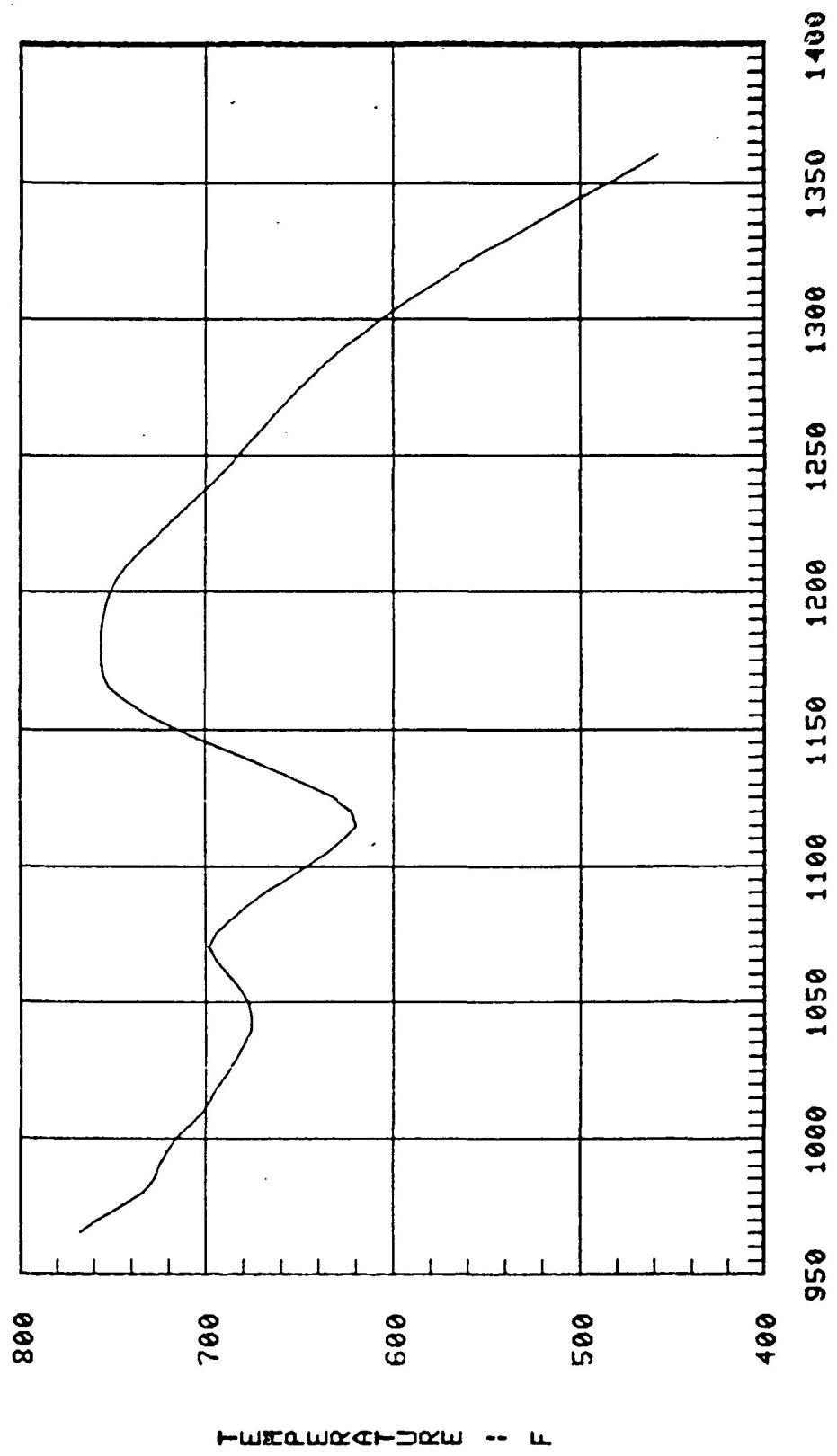
STS-3 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

U07719916A



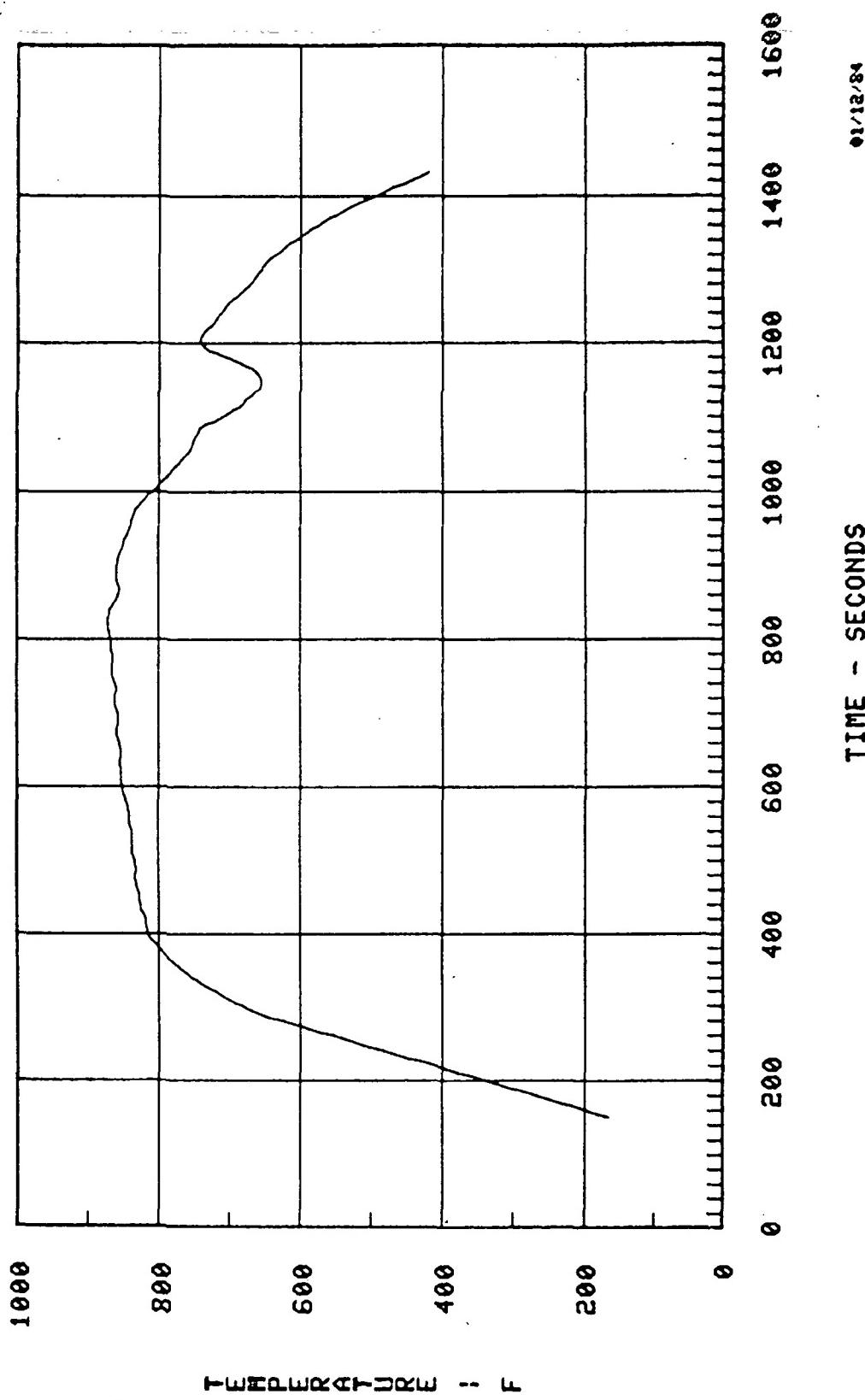
STS-4 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

U07T9916A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.23) Z=400

08779916A

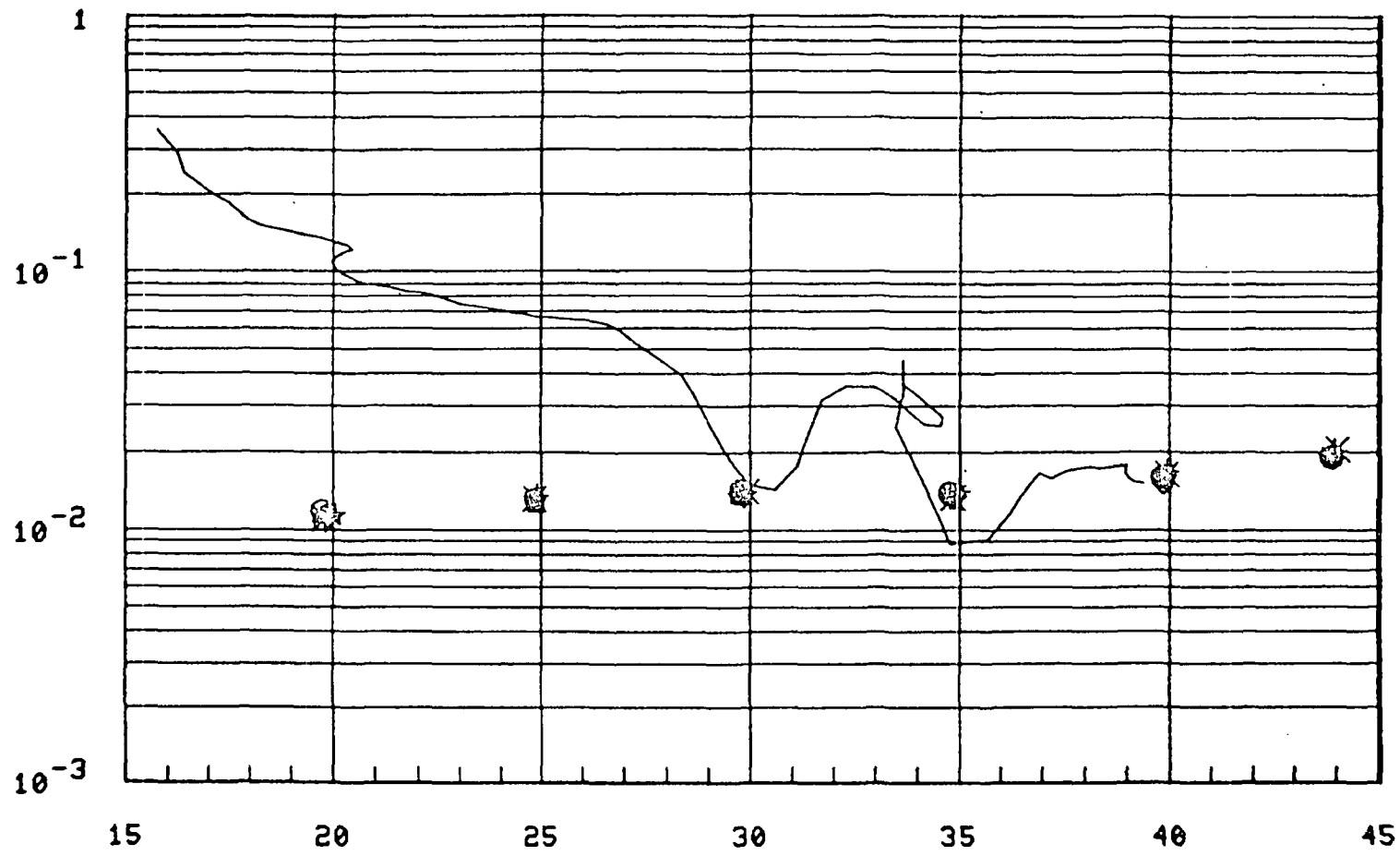


STS-1 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

OH74 0.0175 SCALE RE • 0.5 E06
 OH74 0.0175 SCALE RE • 1.0 E06
 OH74 0.0175 SCALE RE • 1.5 E06
 OH74 0.0175 SCALE RE • 2.0 E06
 OH74 0.0175 SCALE RE • 2.5 E06
 OH74 0.0175 SCALE RE • 3.0 E06
 OH74 0.0175 SCALE RE • 3.5 E06
 OH74 0.0175 SCALE RE • 3.7 E06

U07T9893A/H-REF 1065-1500 SEC

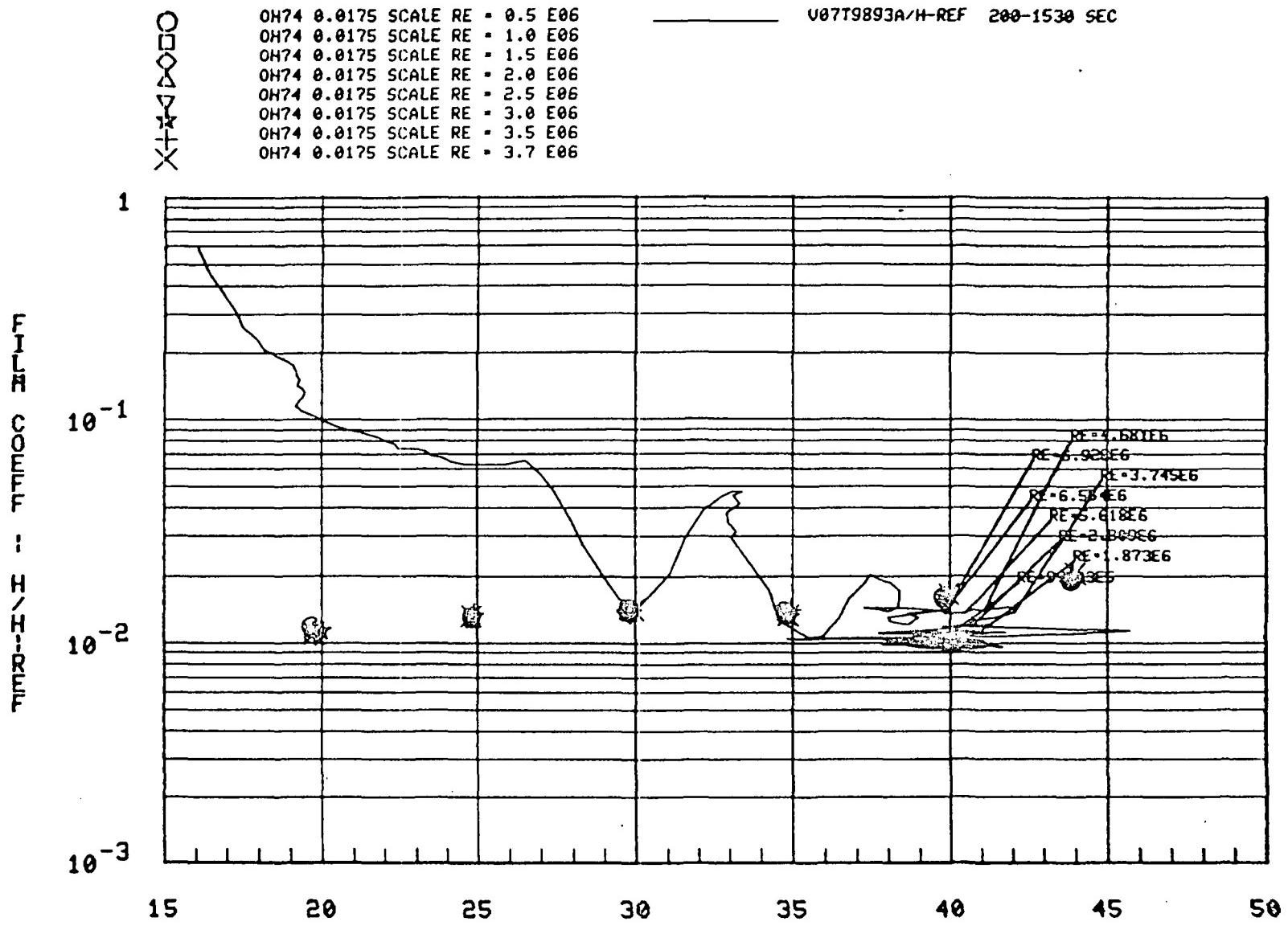
O ◇ △ ★ + X
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STS-2 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9893A/H-REF 200-1530 SEC



B-52

ANGLE-OF-ATTACK - DEG

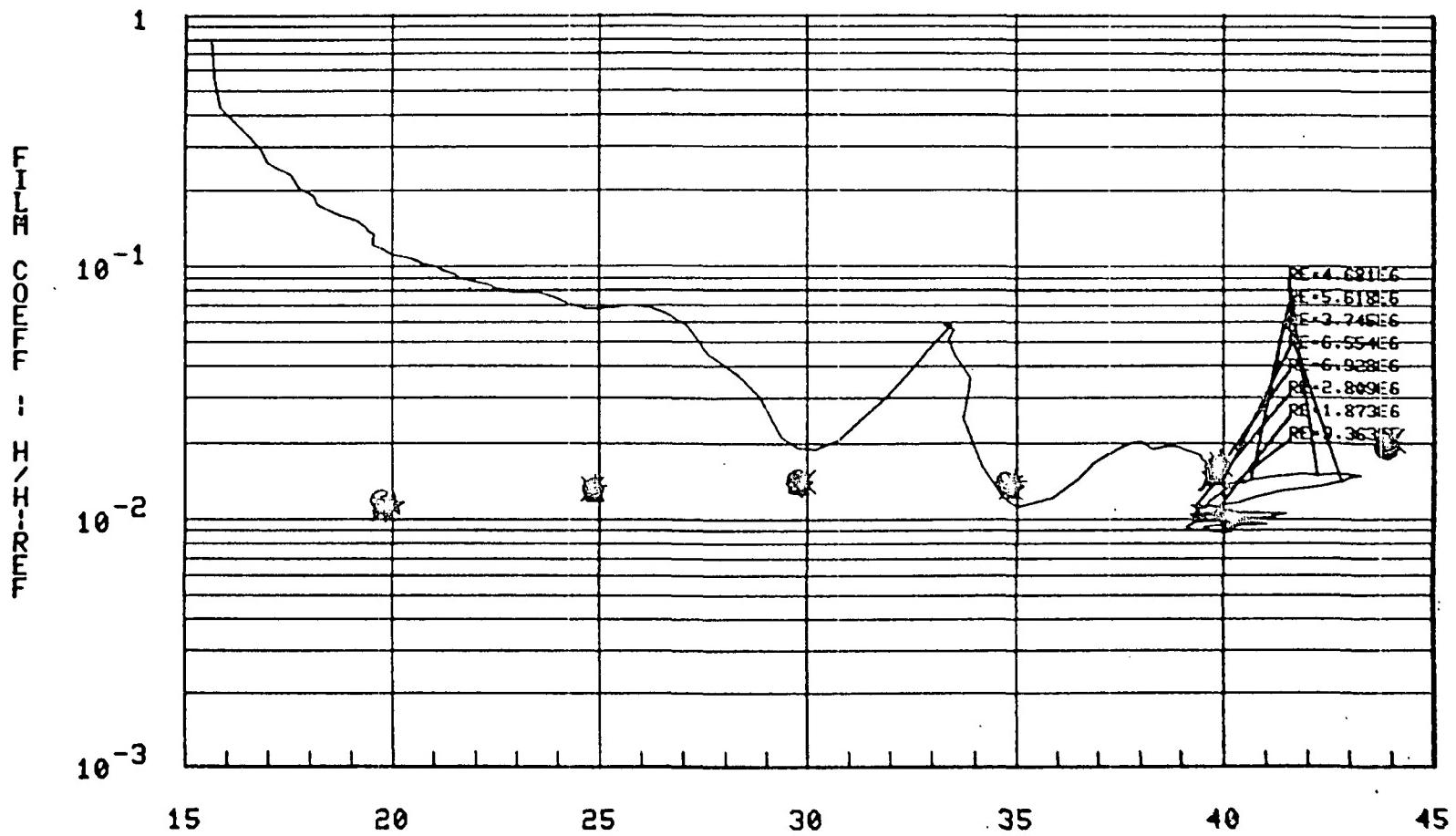
01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

V07T9893A/H-REF 200-1440 SEC

○ □ ◇ △ ▲ ✕ + X



B-53

ANGLE-OF-ATTACK - DEG

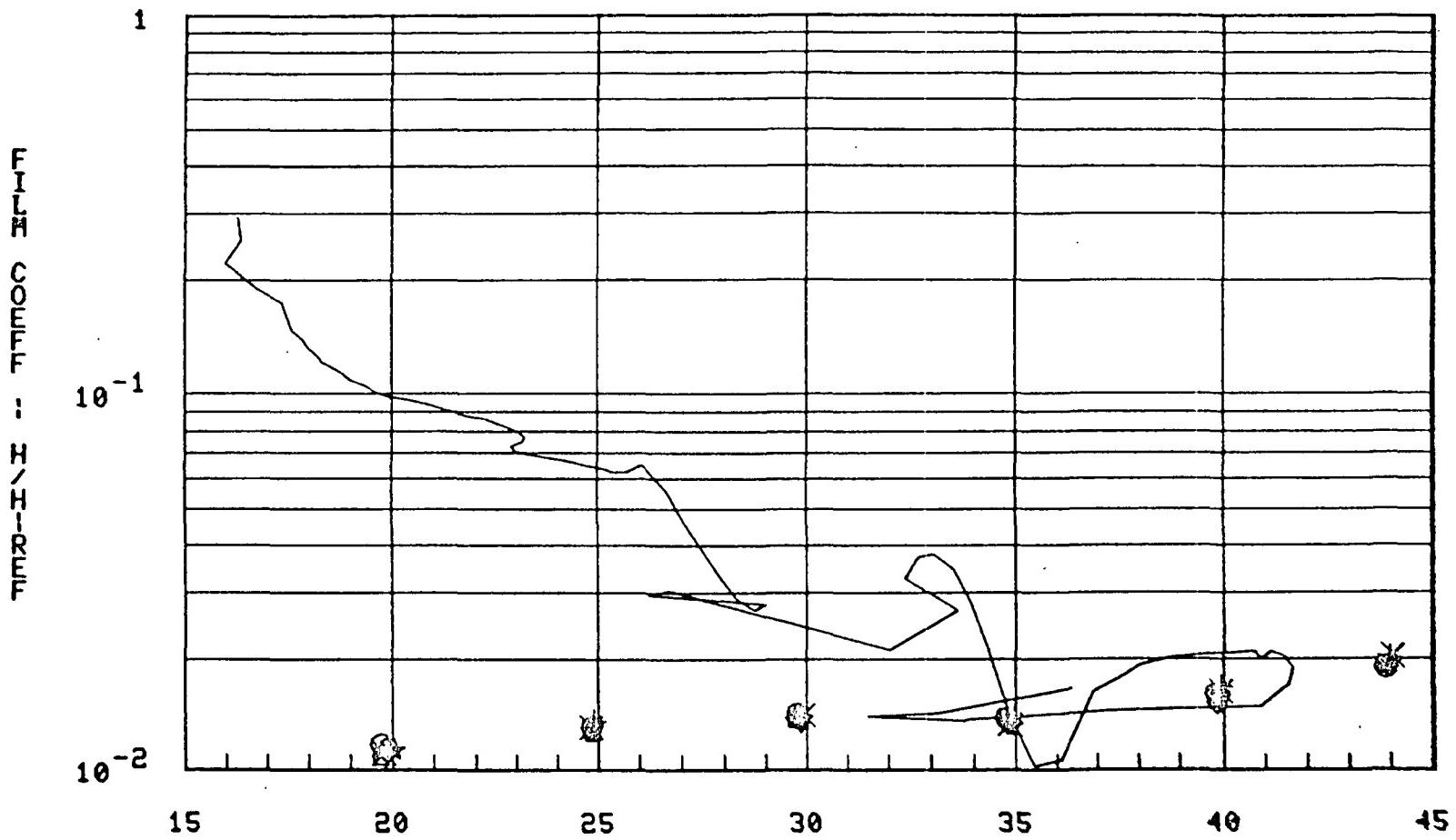
01/11/84
BASE TIME = 077456S4.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9893A/H-REF 965-1368 SEC

O □ ◇ △ ★ + X

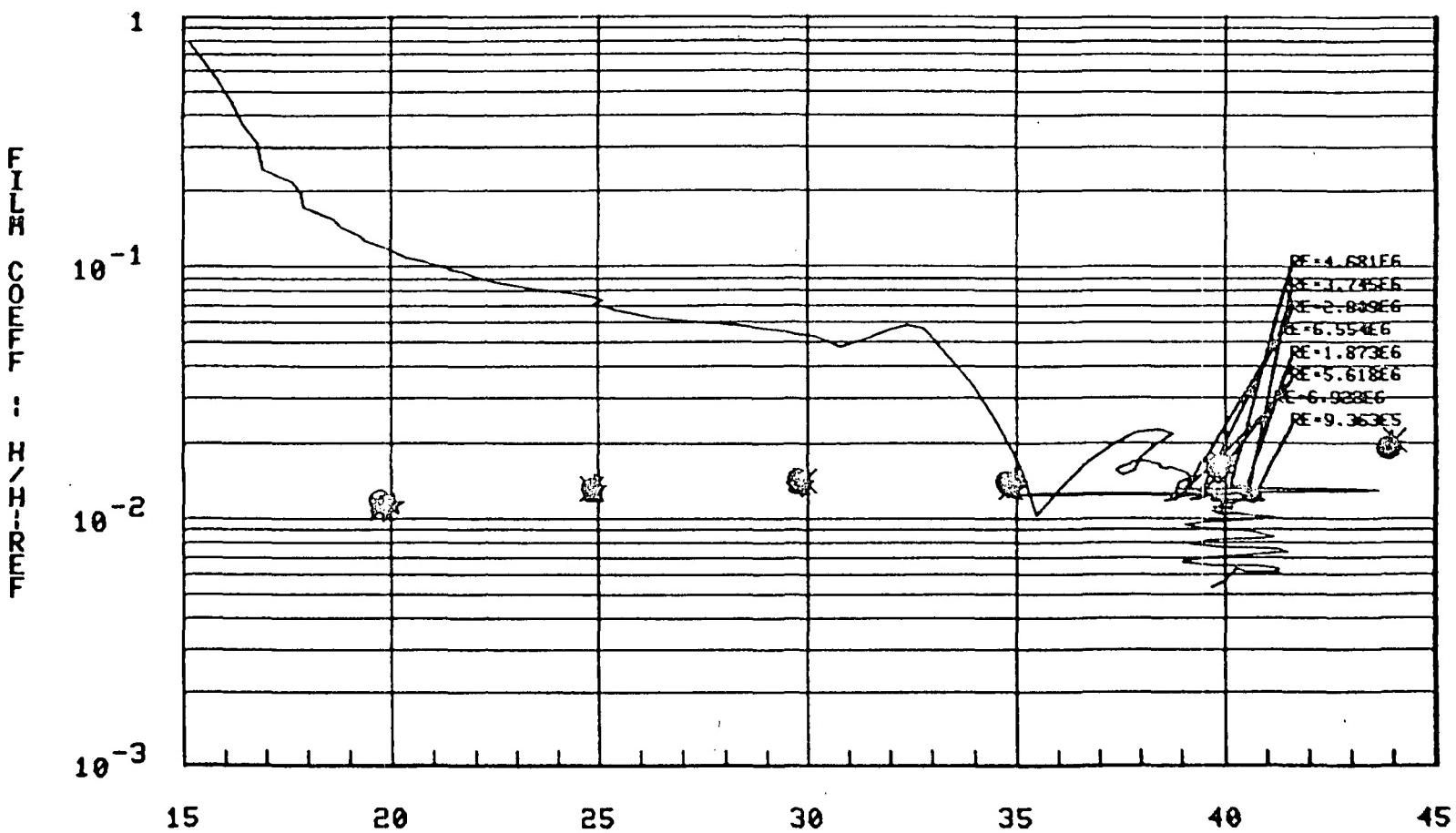


STS-5 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9893A/H-REF 150-1430 SEC

O □ ◇ △ ▲ ★ + X



B-55

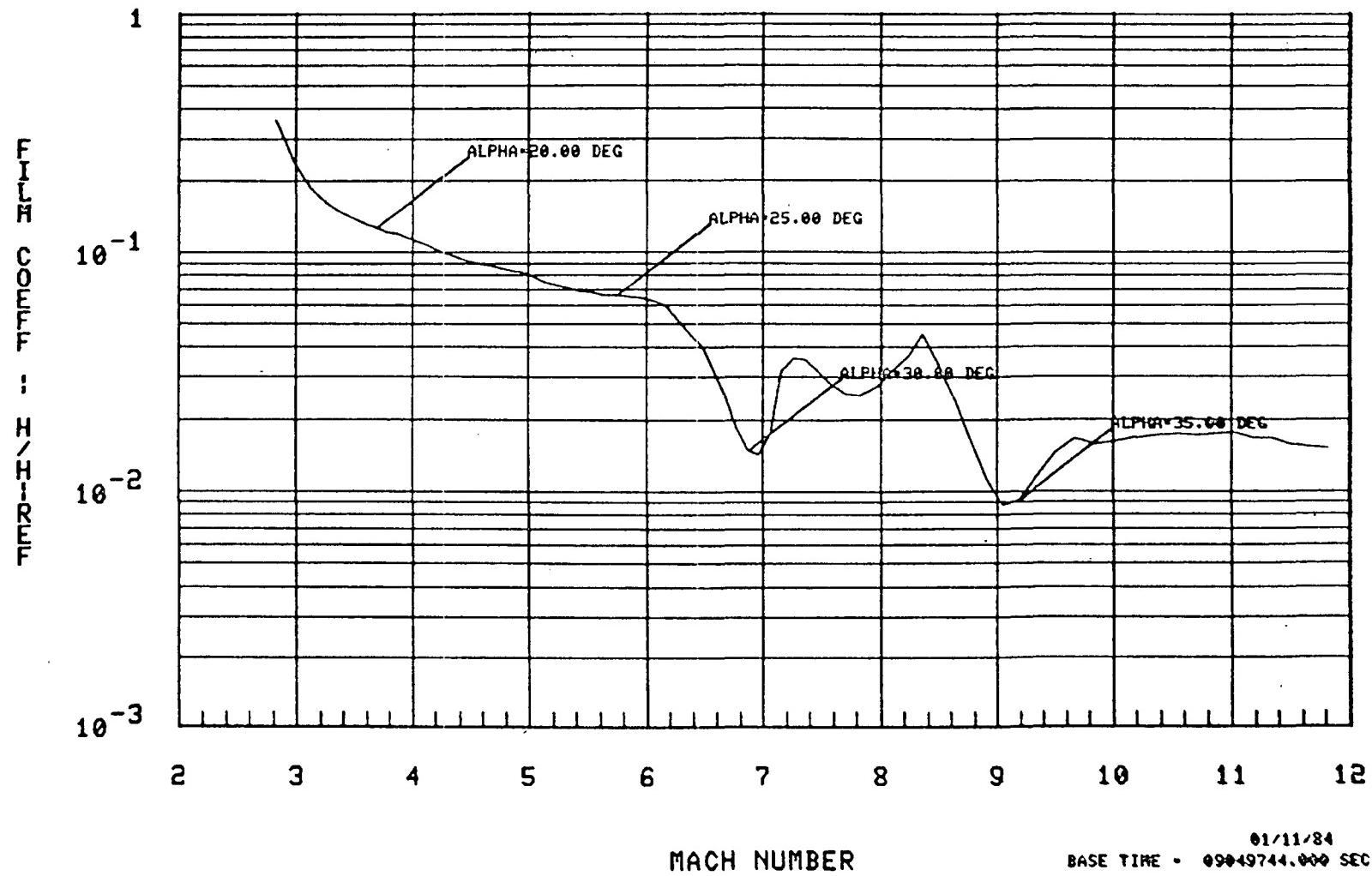
ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U07T9893A/H-REF 1065-1500 SEC

B-56

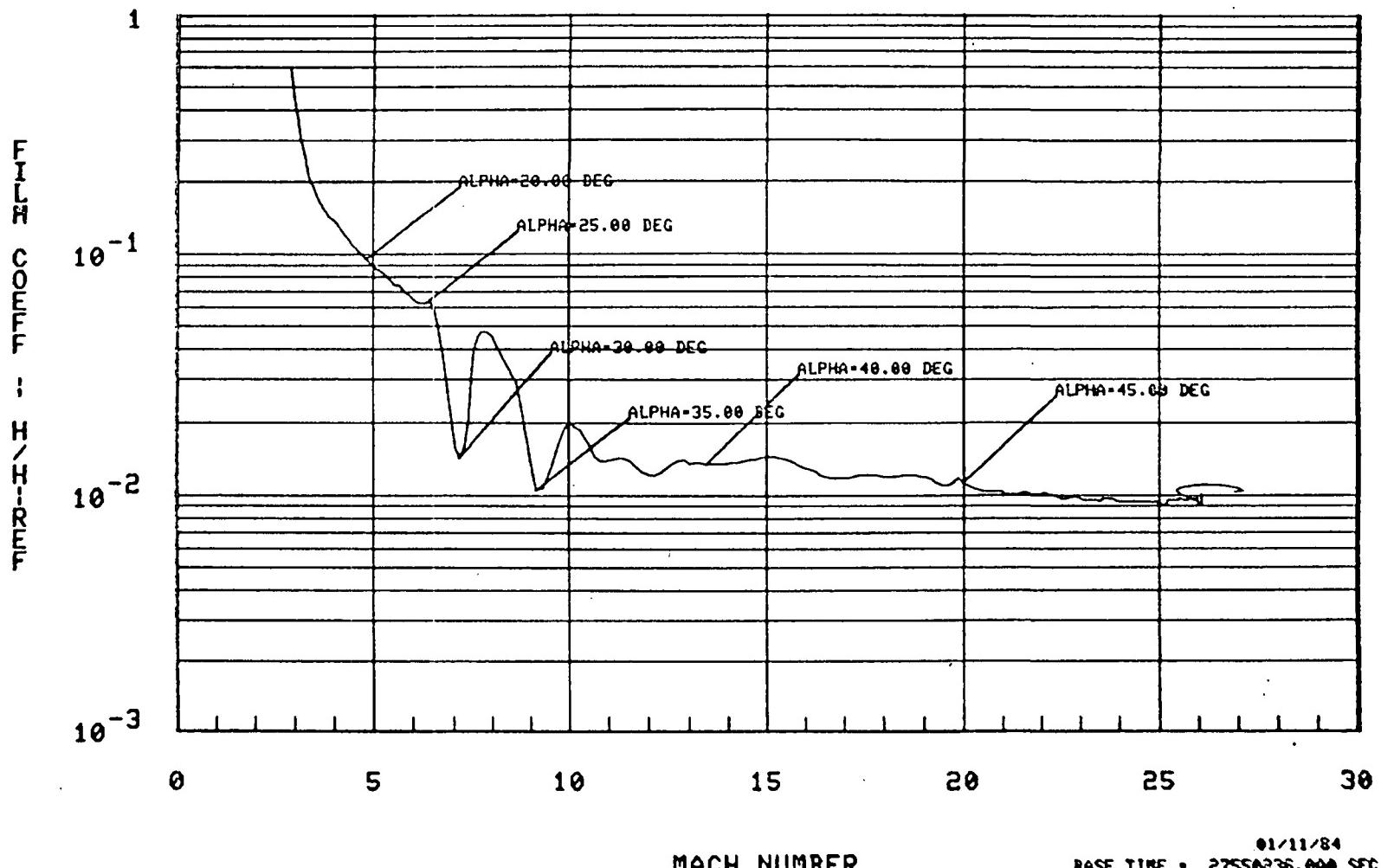


MACH NUMBER

01/11/84
BASE TIME - 09049744.000 SEC.

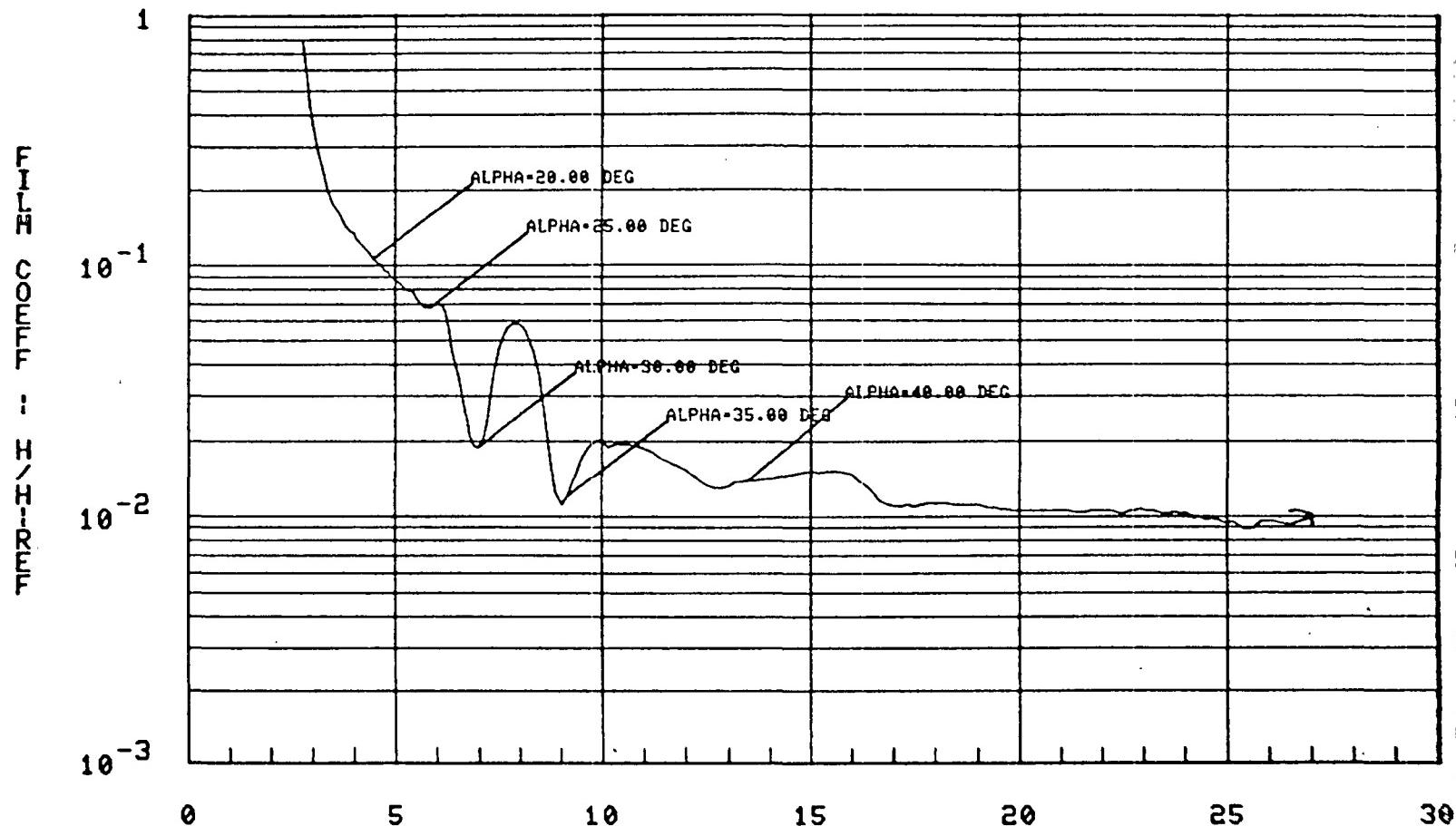
STS-2 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U07T9893A/H-REF 200-1530 SEC



STS-3 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U07T9893A/H-REF 200-1440 SEC

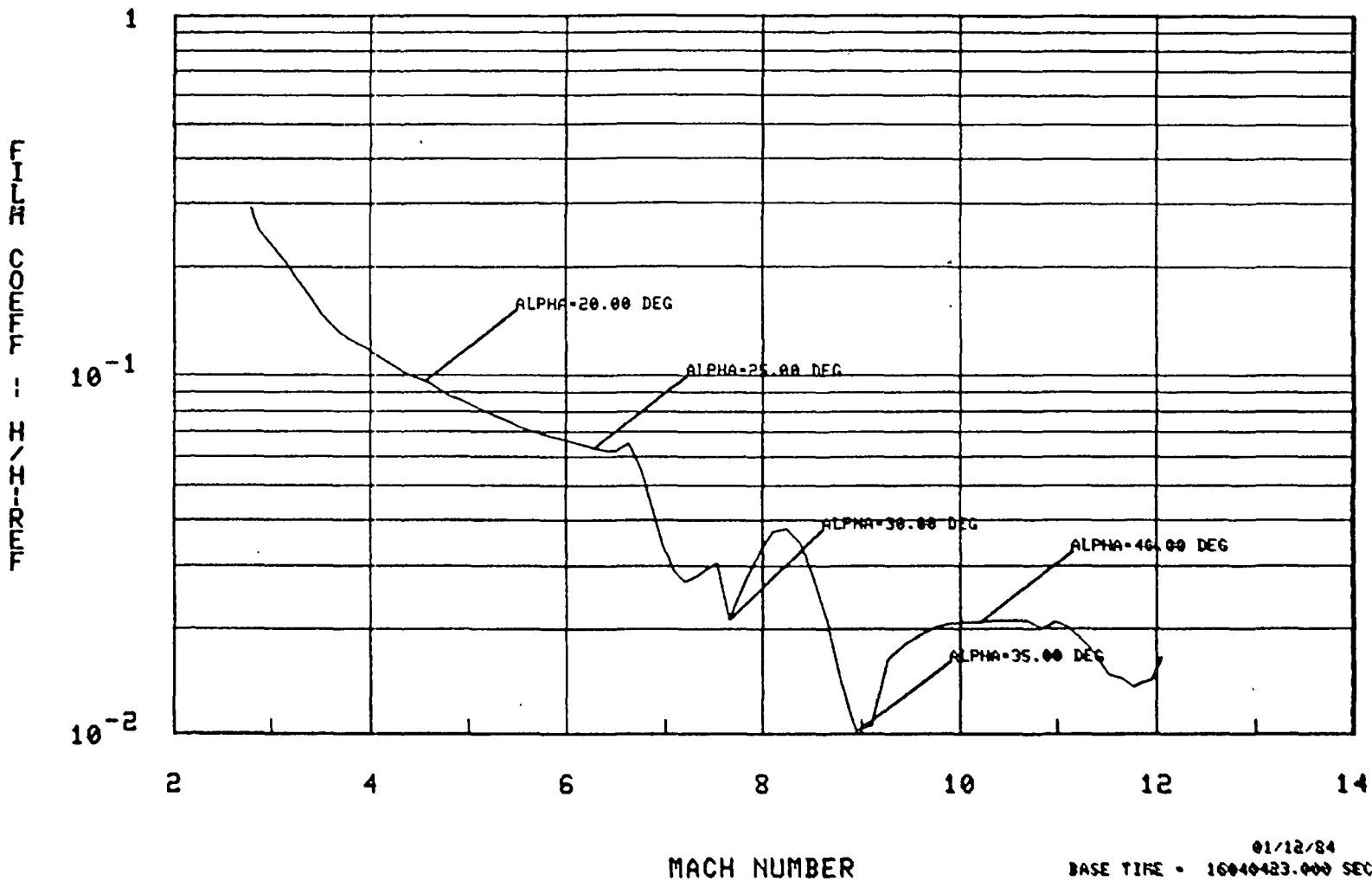


MACH NUMBER

01/11/84
BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U07T9893A/H-REF 965-1360 SEC



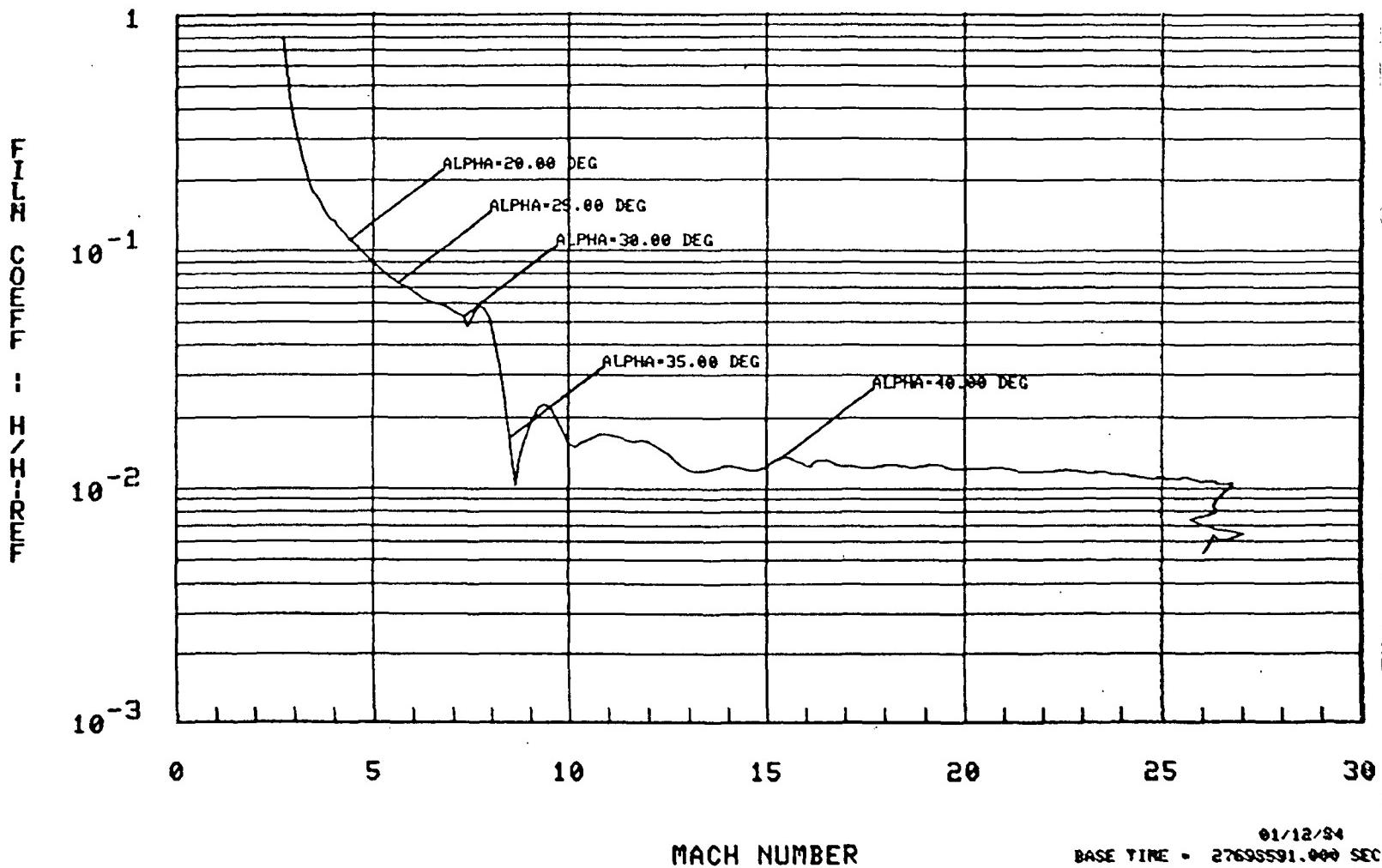
MACH NUMBER

01/12/84

BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U07T9893A/H-REF 150-1430 SEC



STS-1 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

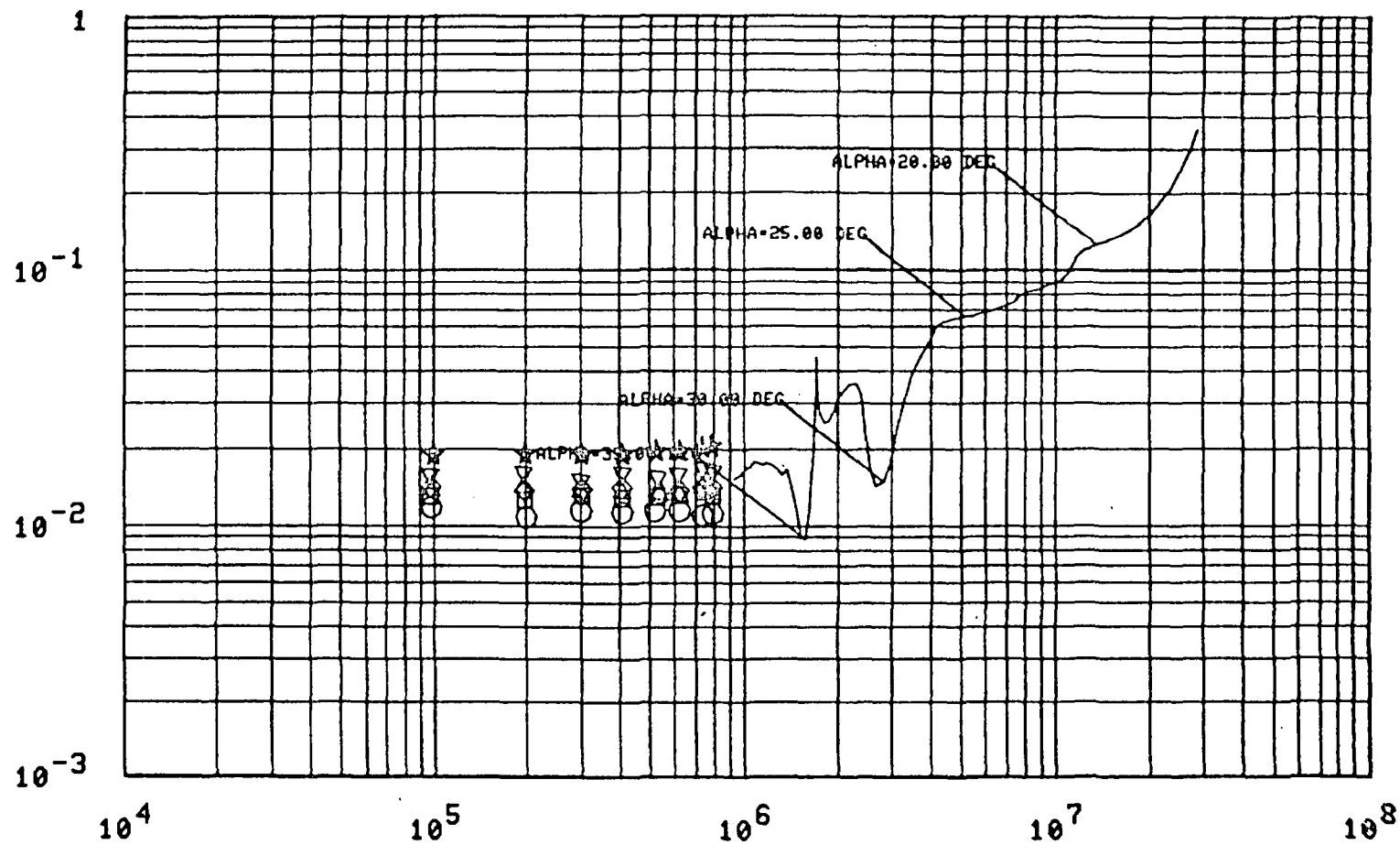
○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9893A/H-REF 1065-1500 SEC

LINE SOURCE - H-E-5000

B-61



REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 09049744.000 SEC.

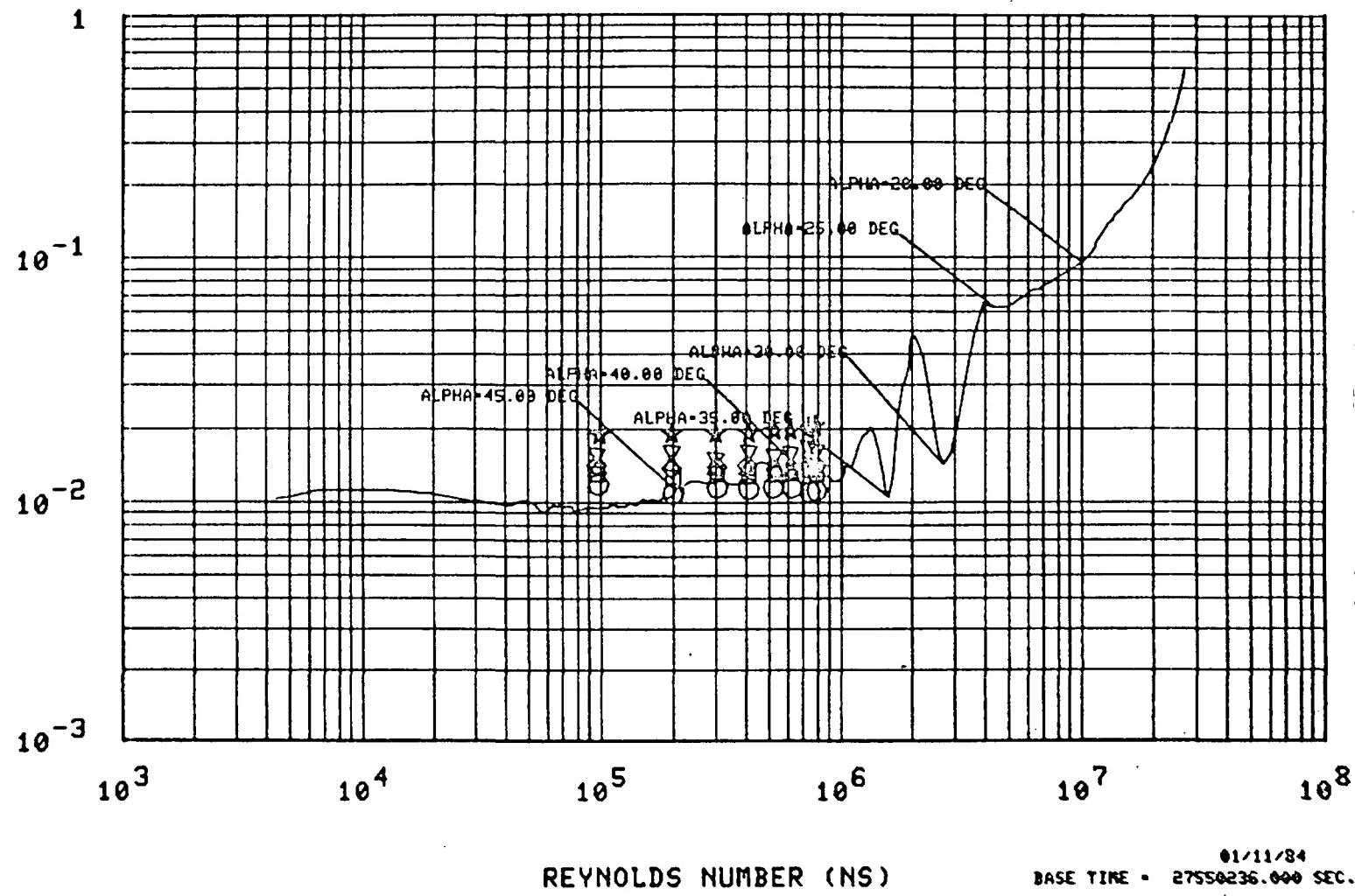
STS-2 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9893A/H-REF 200-1530 SEC



B-62



STS-3 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

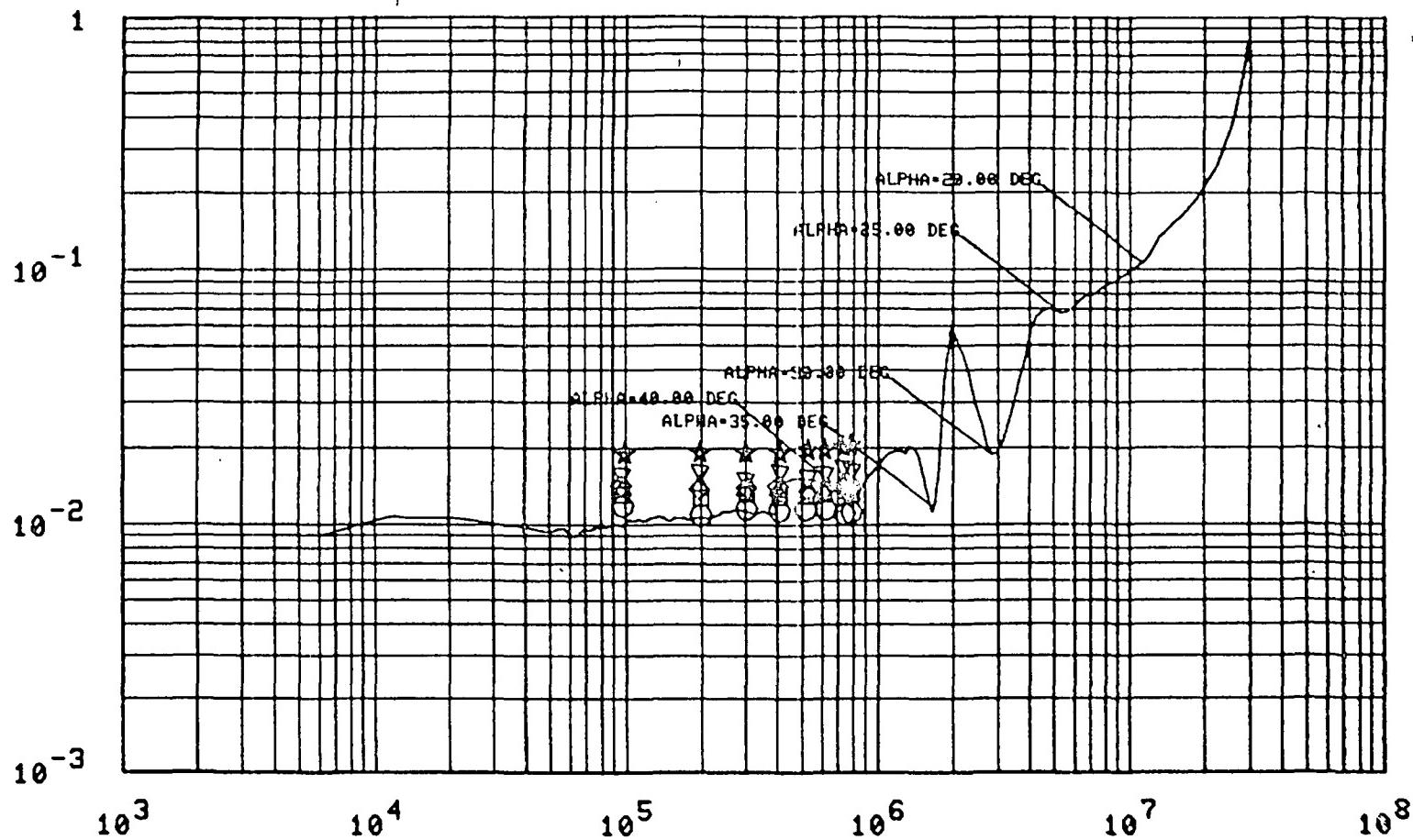
○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U87T9893A/H-REF 200-1440 SEC

FILM CODE: H/H-RREF

B-63



REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.040 SEC.

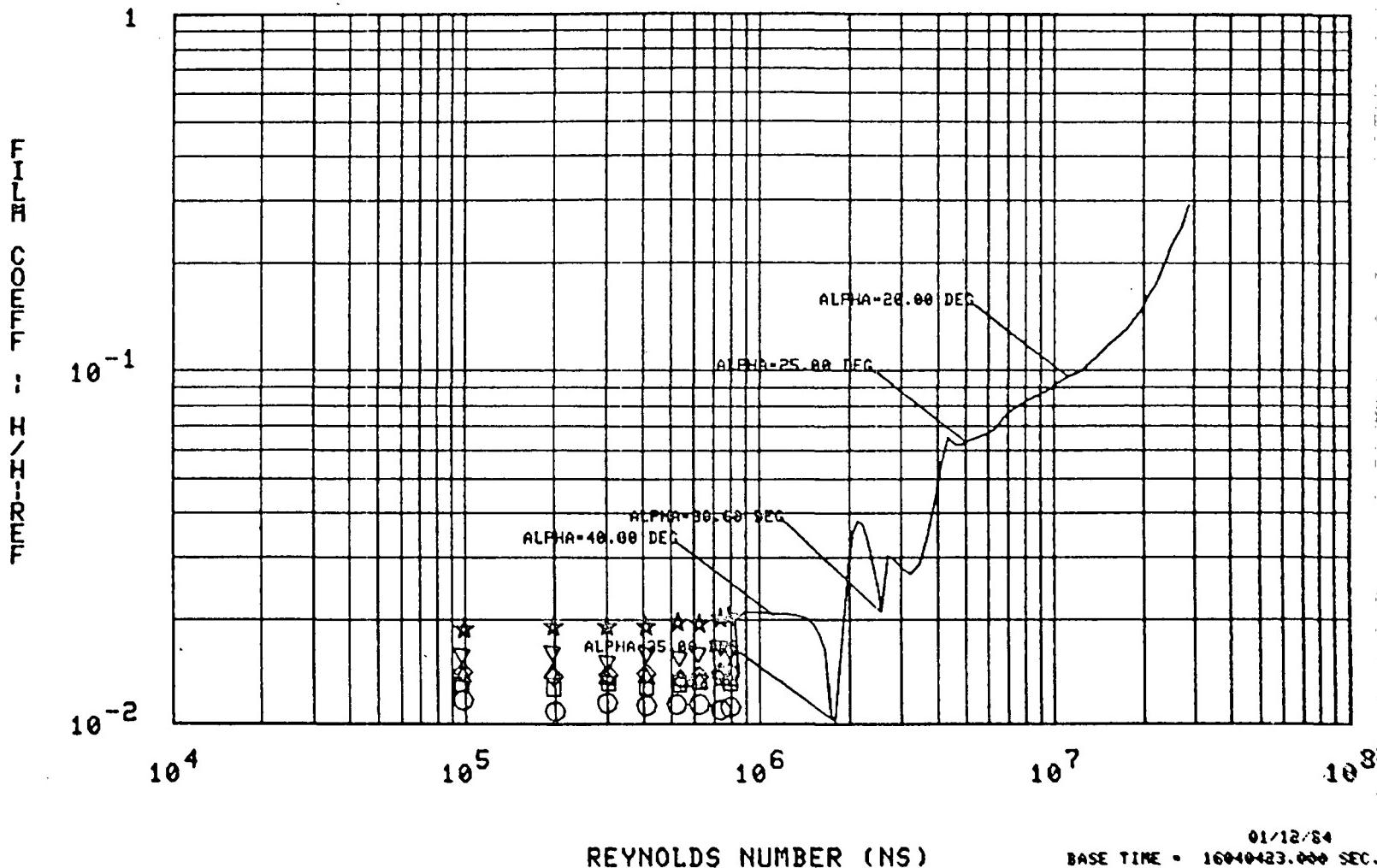
STS-4 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9893A/H-REF 965-1360 SEC



B-64



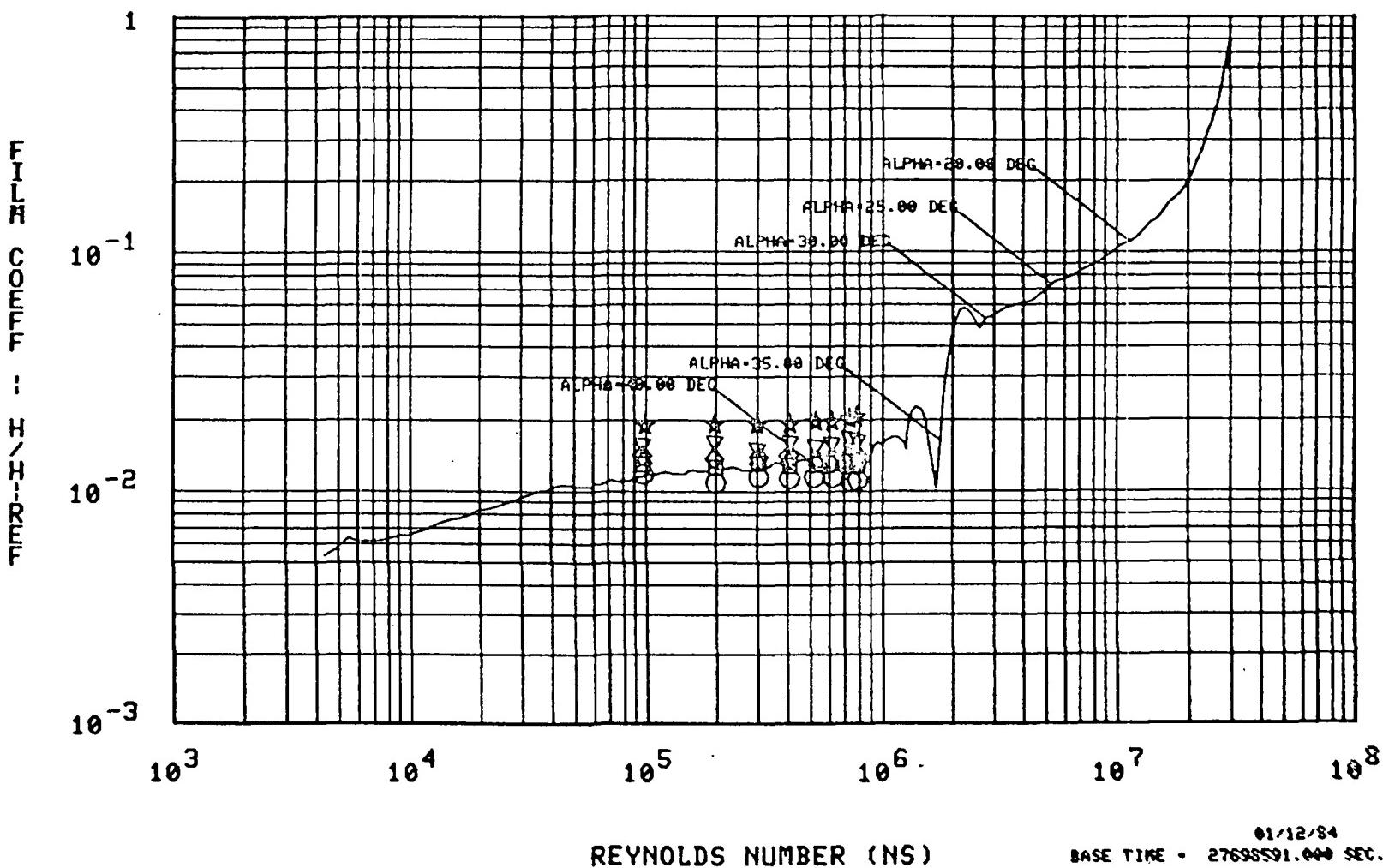
01/12/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9893A/H-REF 150-1430 SEC



B-65

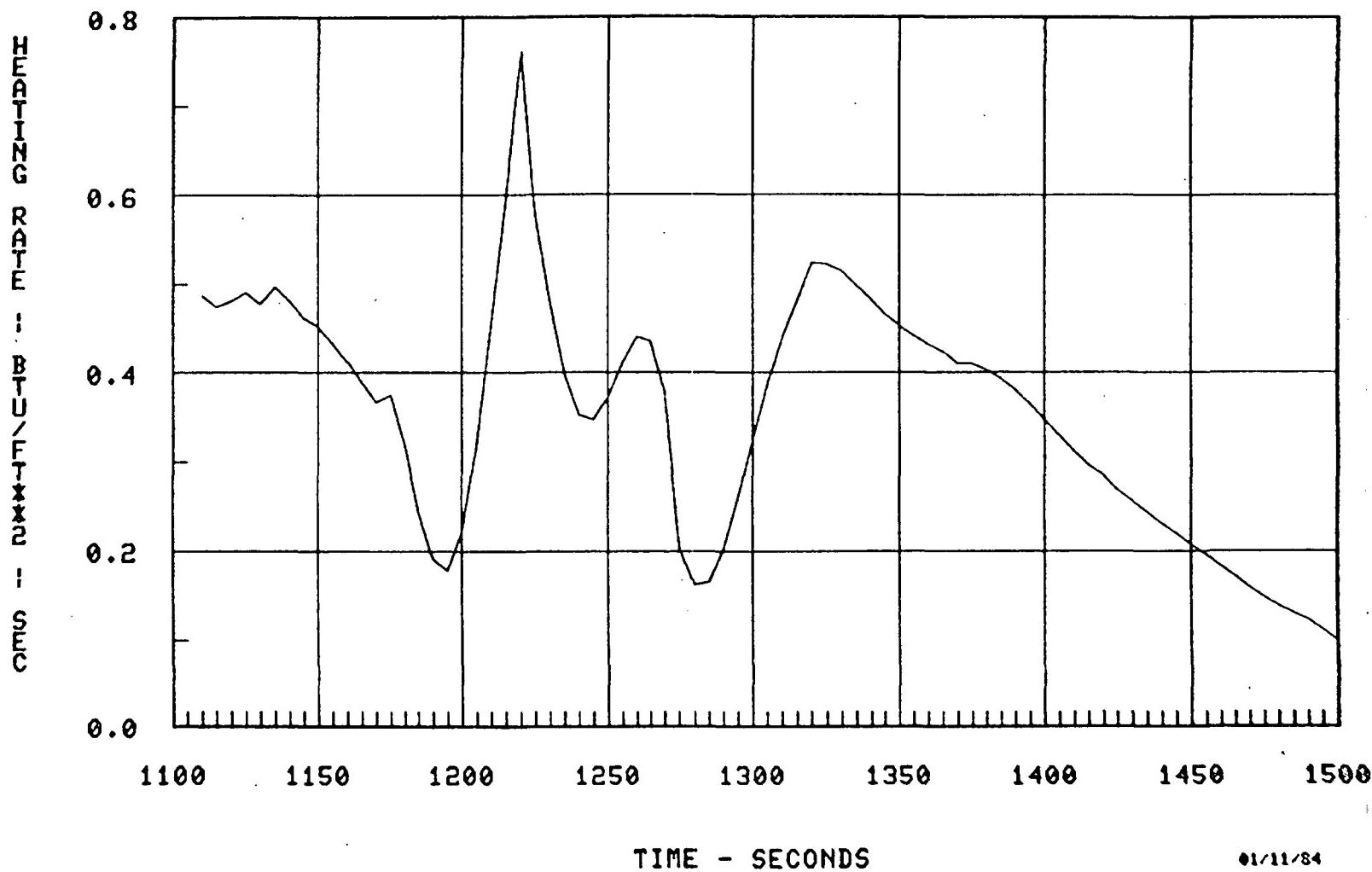
REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

V07T9893A

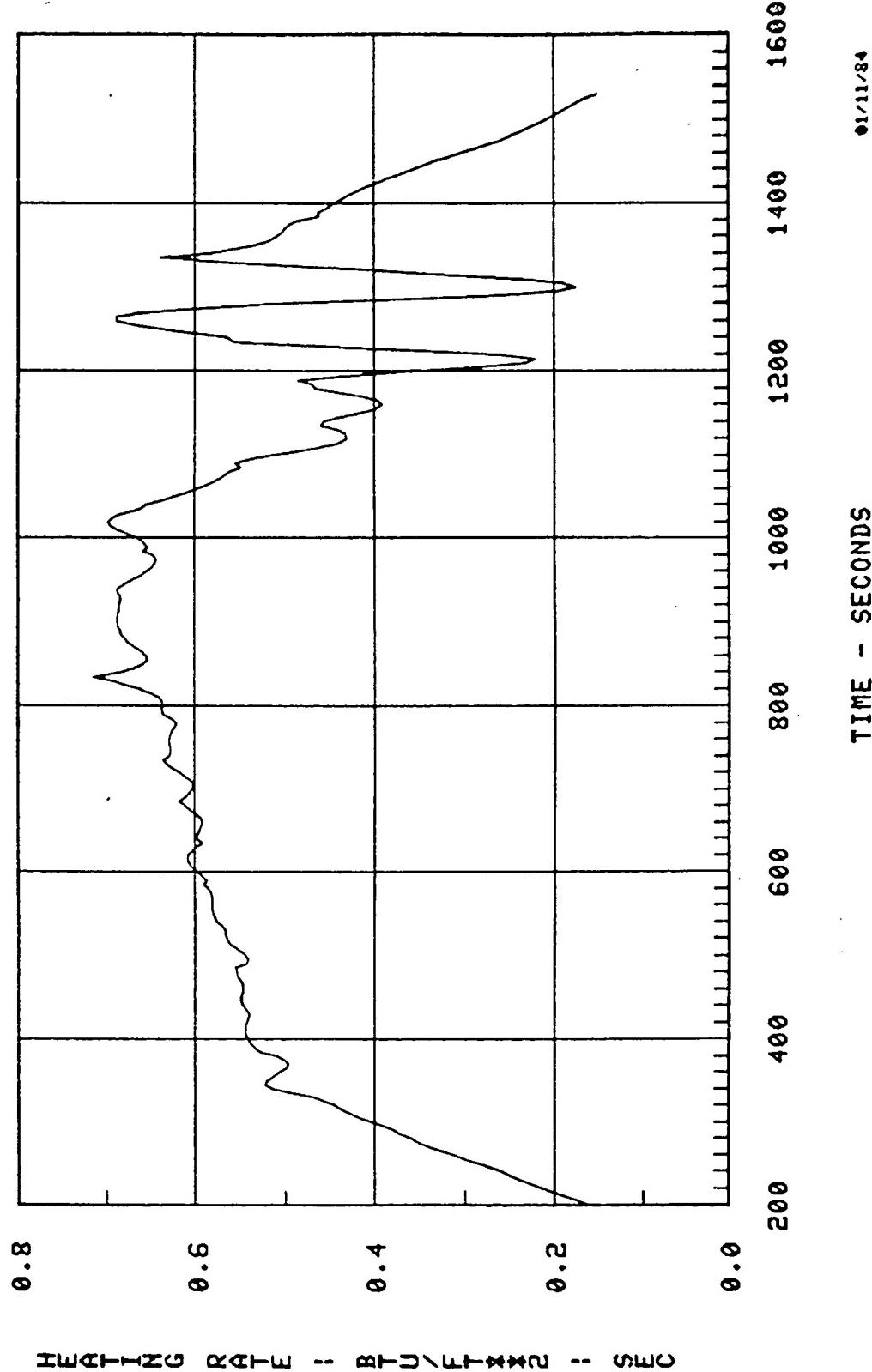
B-66



01/11/84

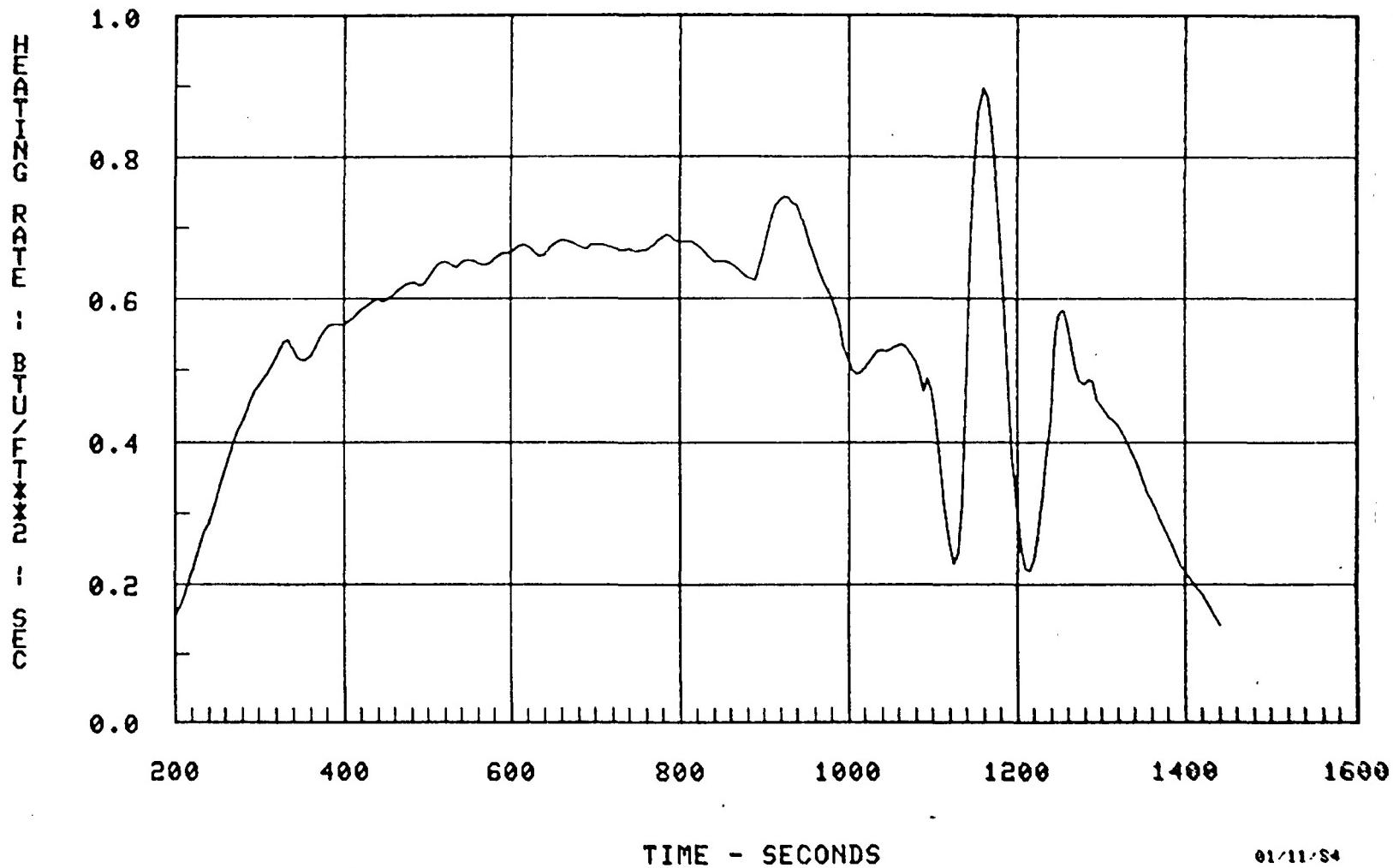
STS-2 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U87T9893A



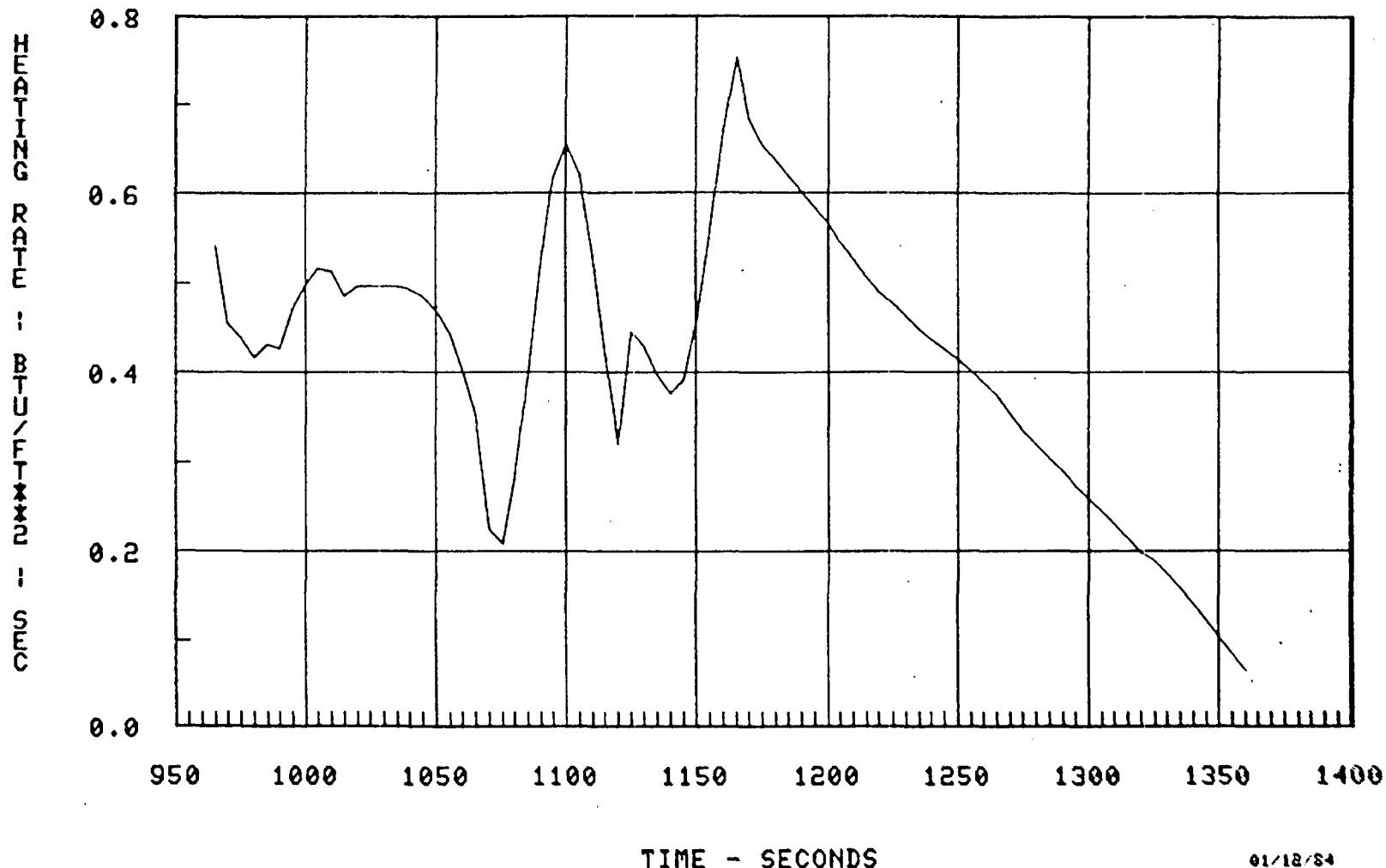
STS-3 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U07T9893A



STS-4 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

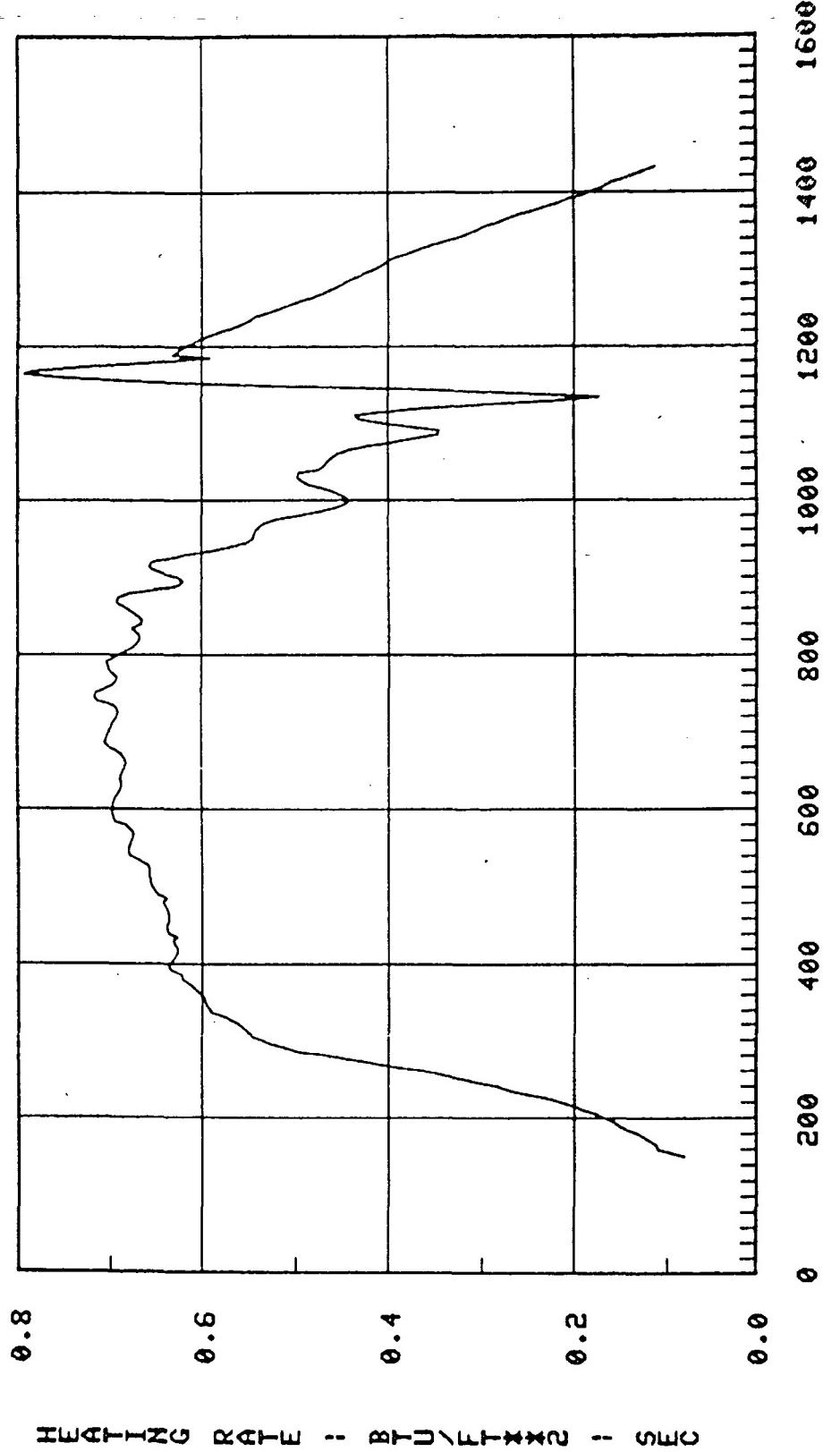
U07T9893A



01/12/84

STS-5 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

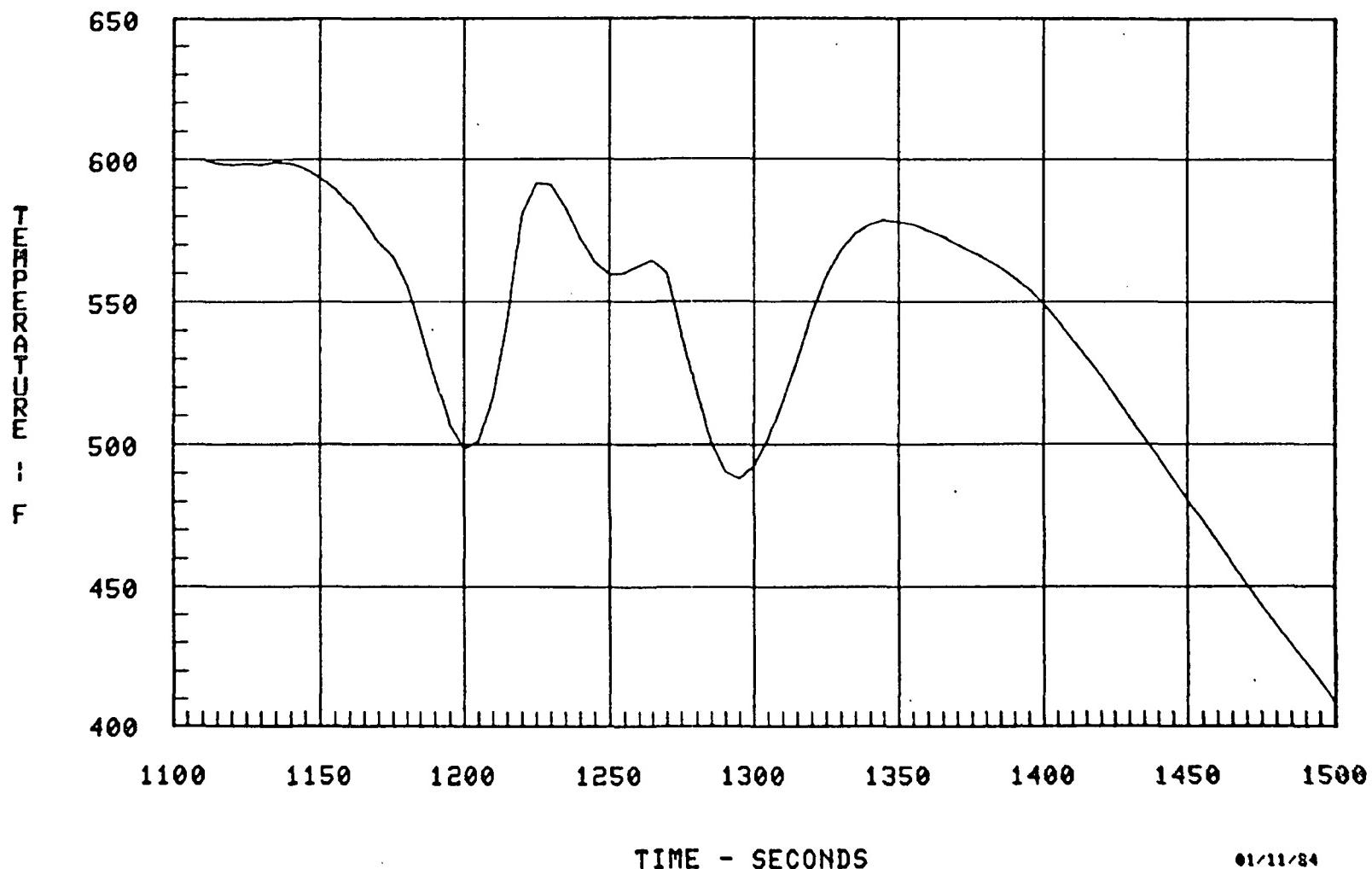
U8779893A



01/12/84

STS-1 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

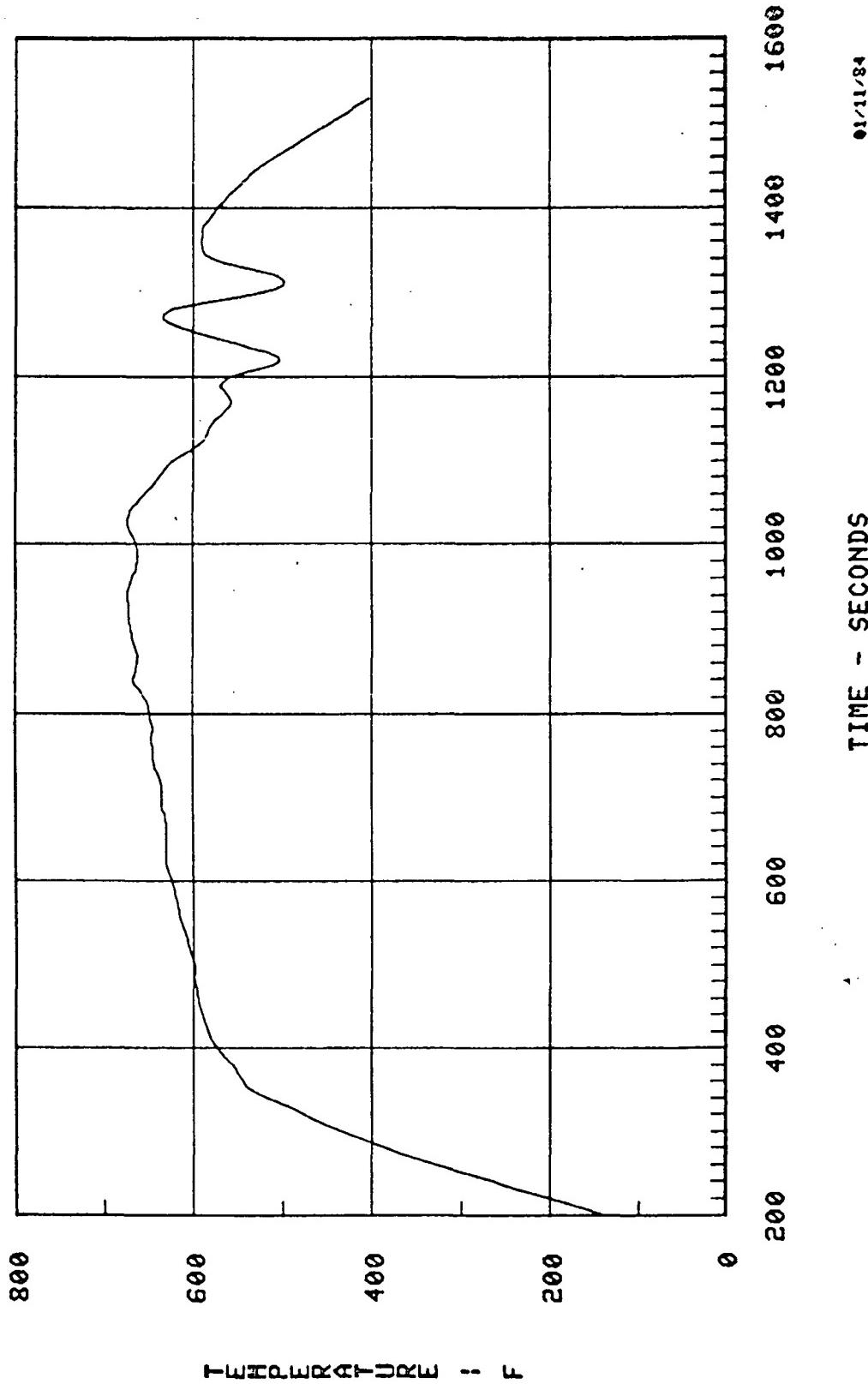
U07T9893A



01/11/84

STS-2 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U0779893A

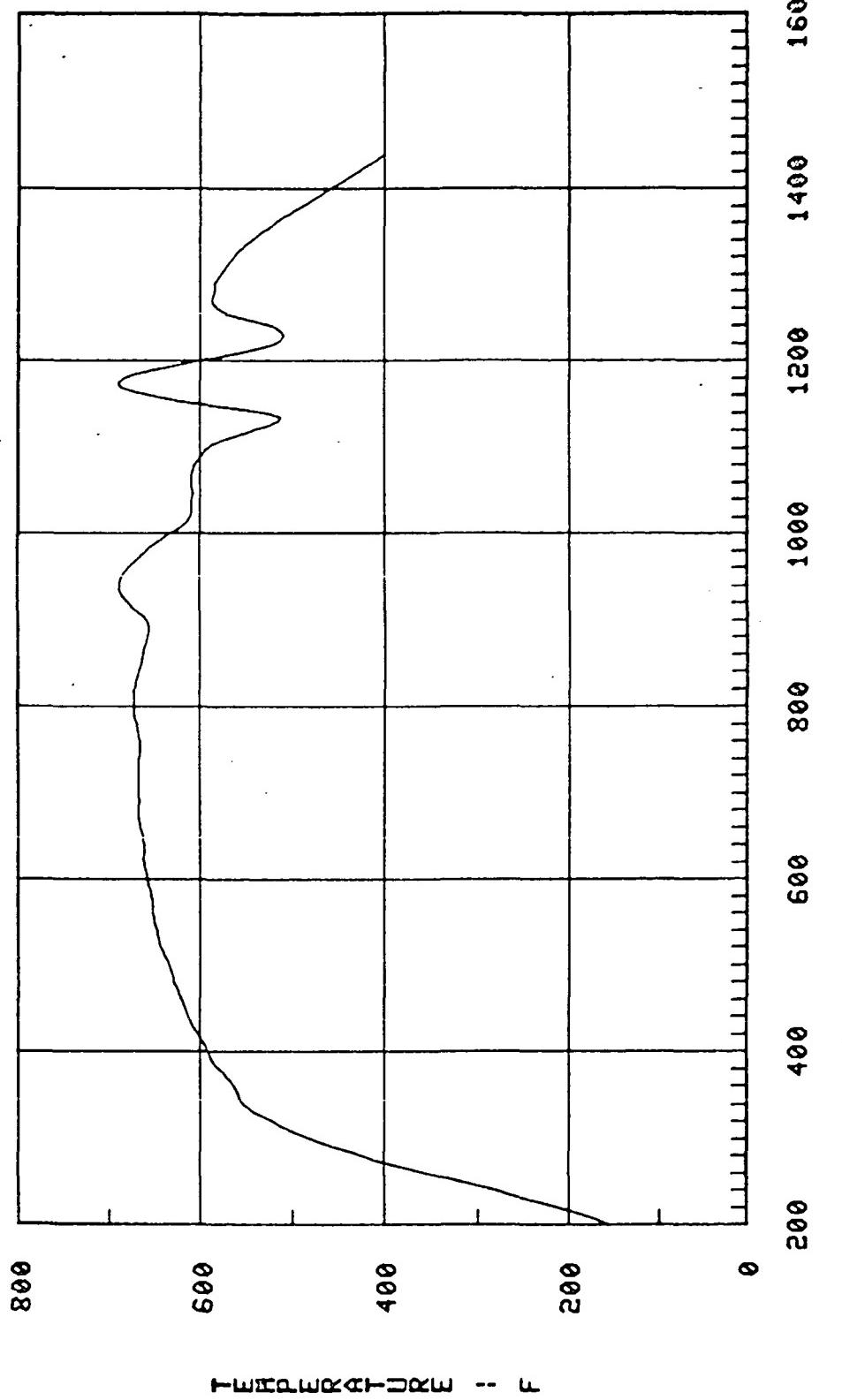


TIME - SECONDS

01/11/84

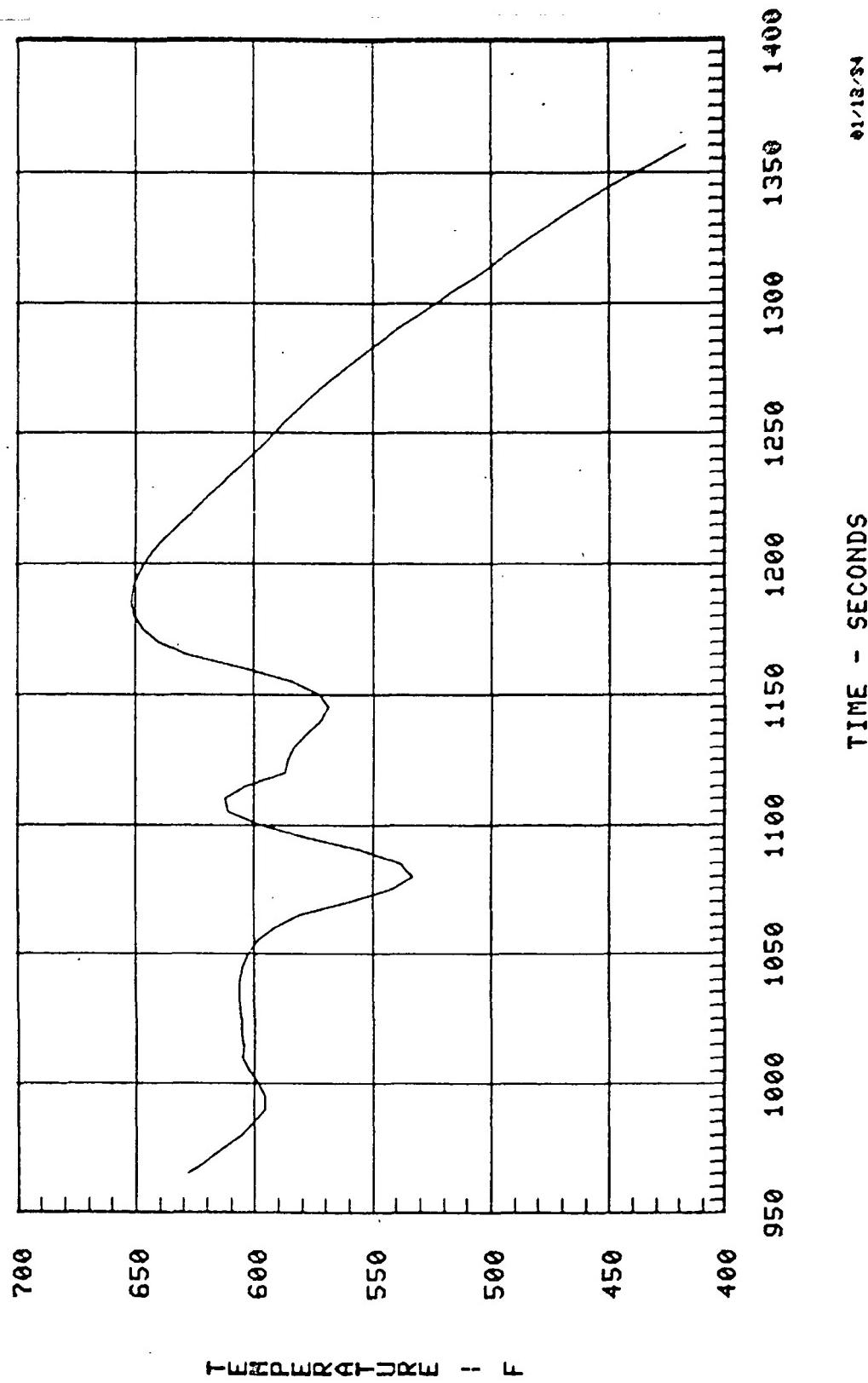
STS-3 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U07T9893A



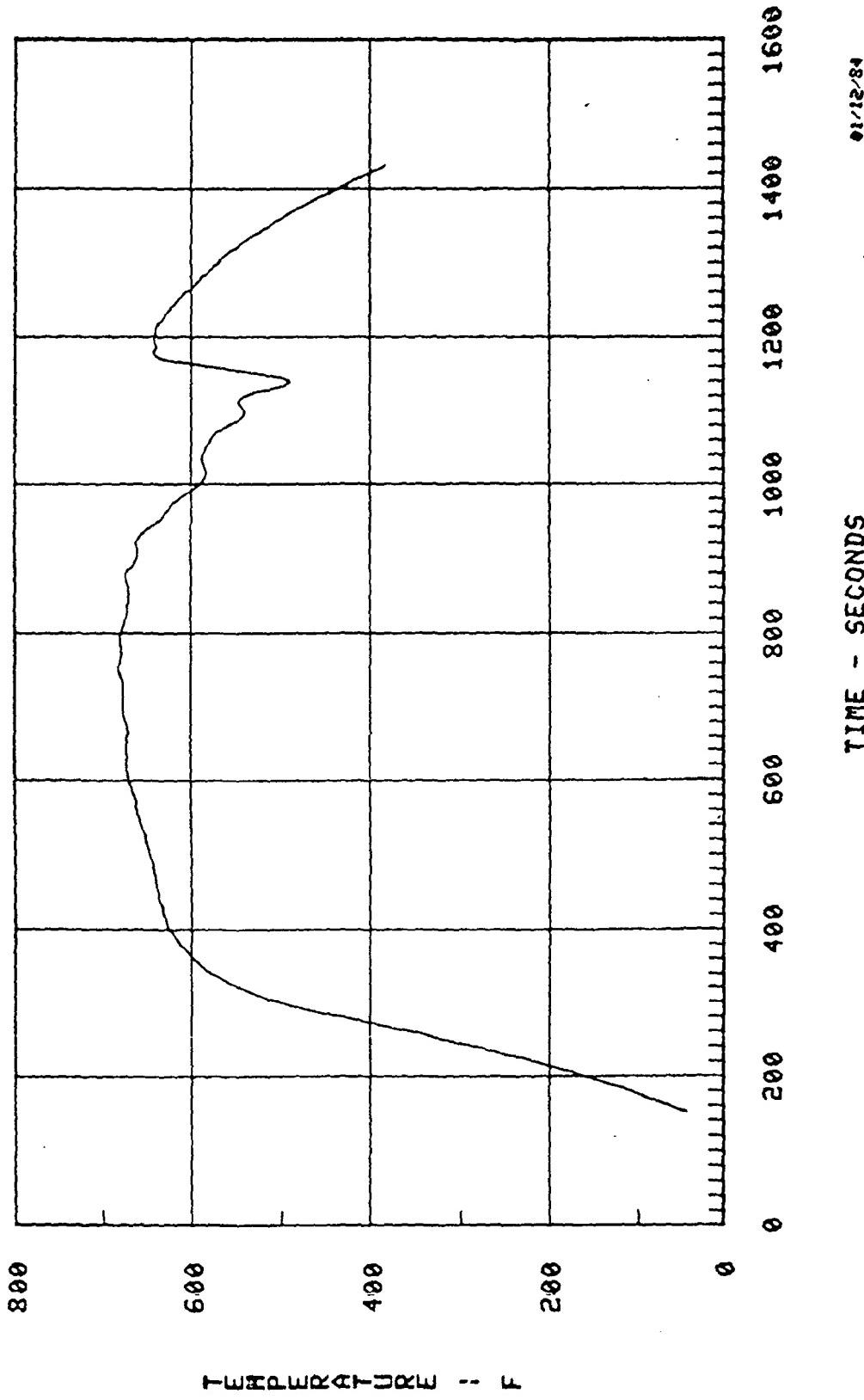
STS-4 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

90719893A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.30) Z=400

U07T9893A



STS-1 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

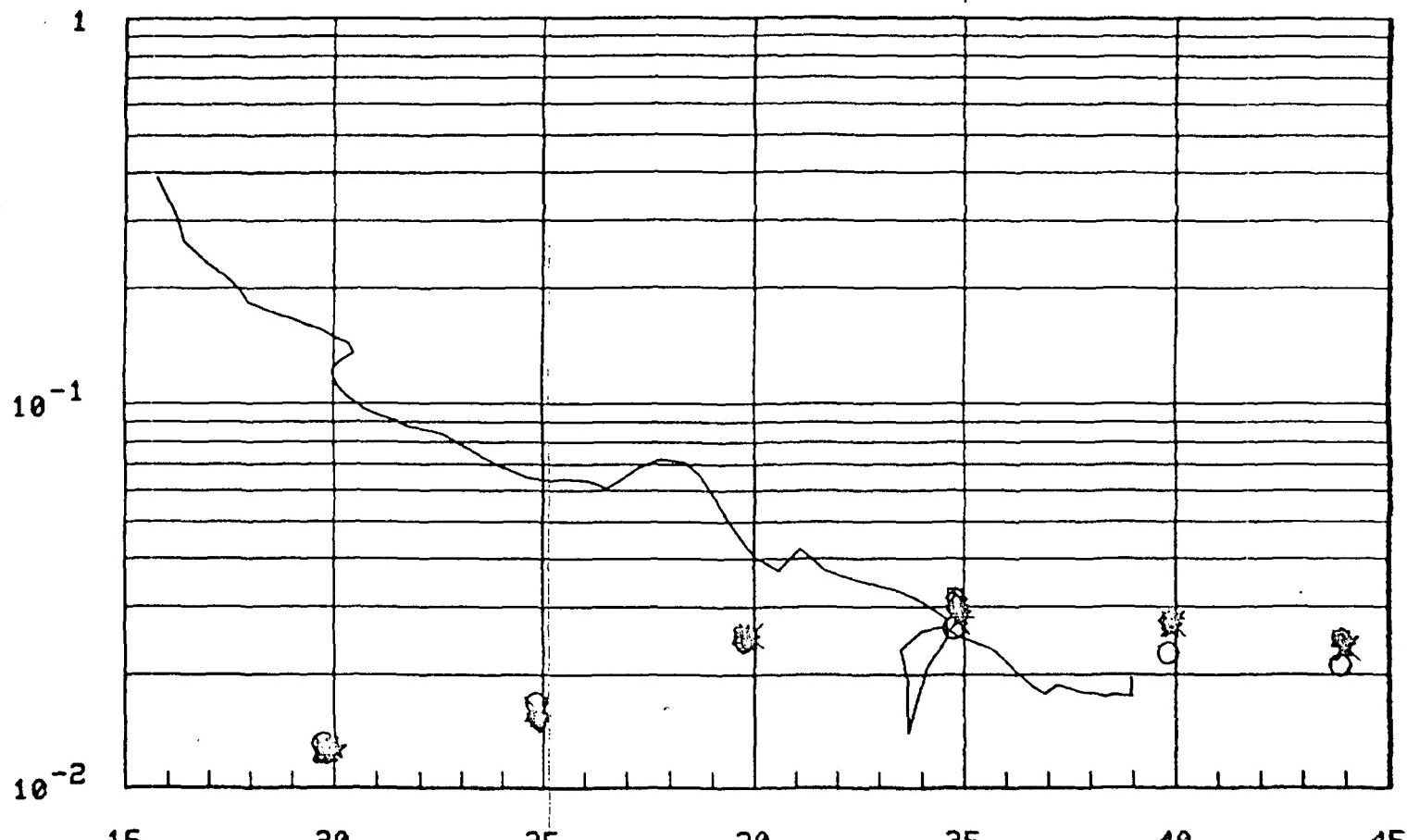
○ □ ◇ △ ★ + X

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U07T9896A/H-REF 1065-1500 SEC

FILE CODE : H/H-REF

8-76



ANGLE-OF-ATTACK - DEG

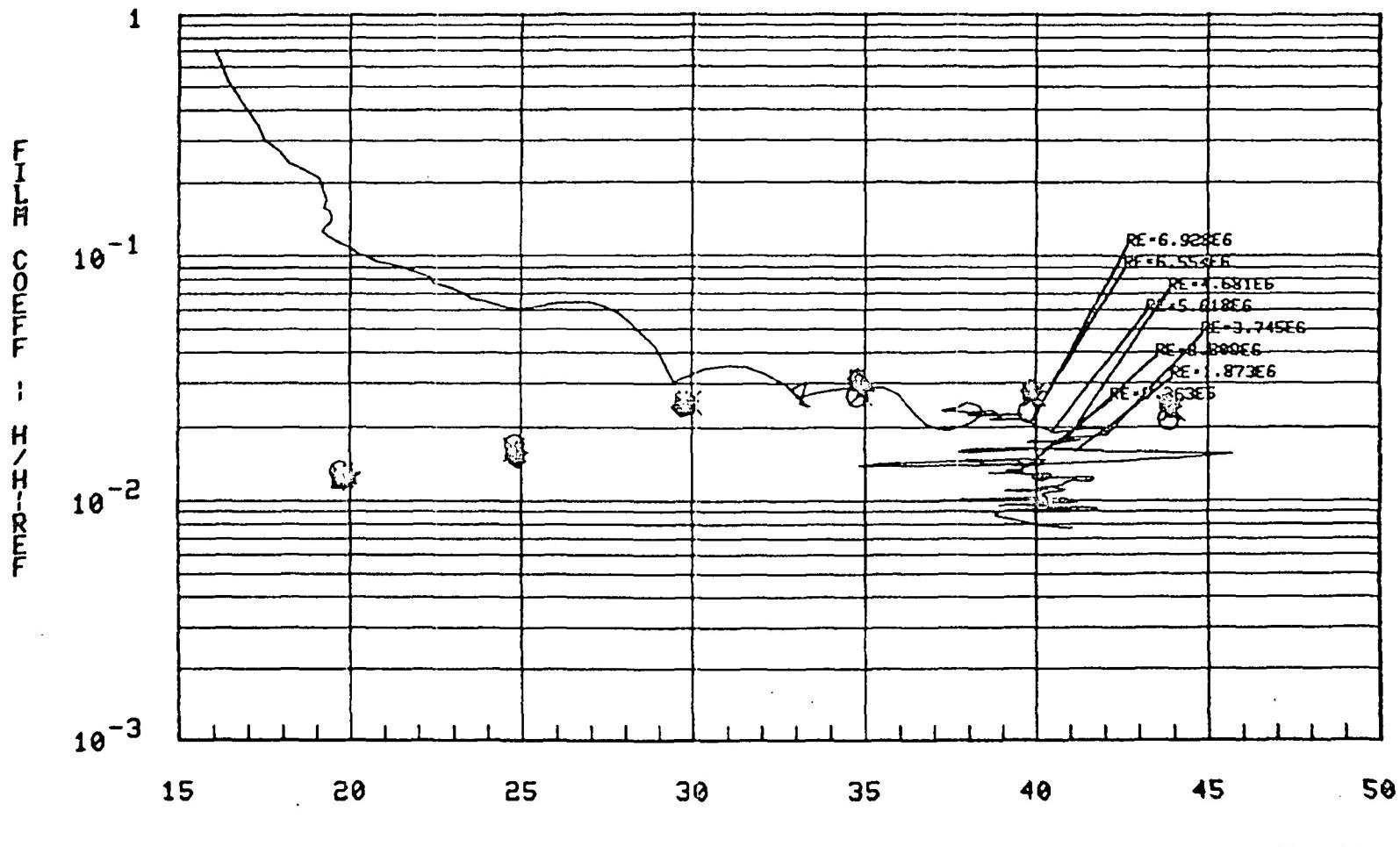
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

○ □ △ ▽ ▷ ★ + X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T98S6A/H-REF 200-1530 SEC



B-77

ANGLE-OF-ATTACK - DEG

01/11/84
 BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

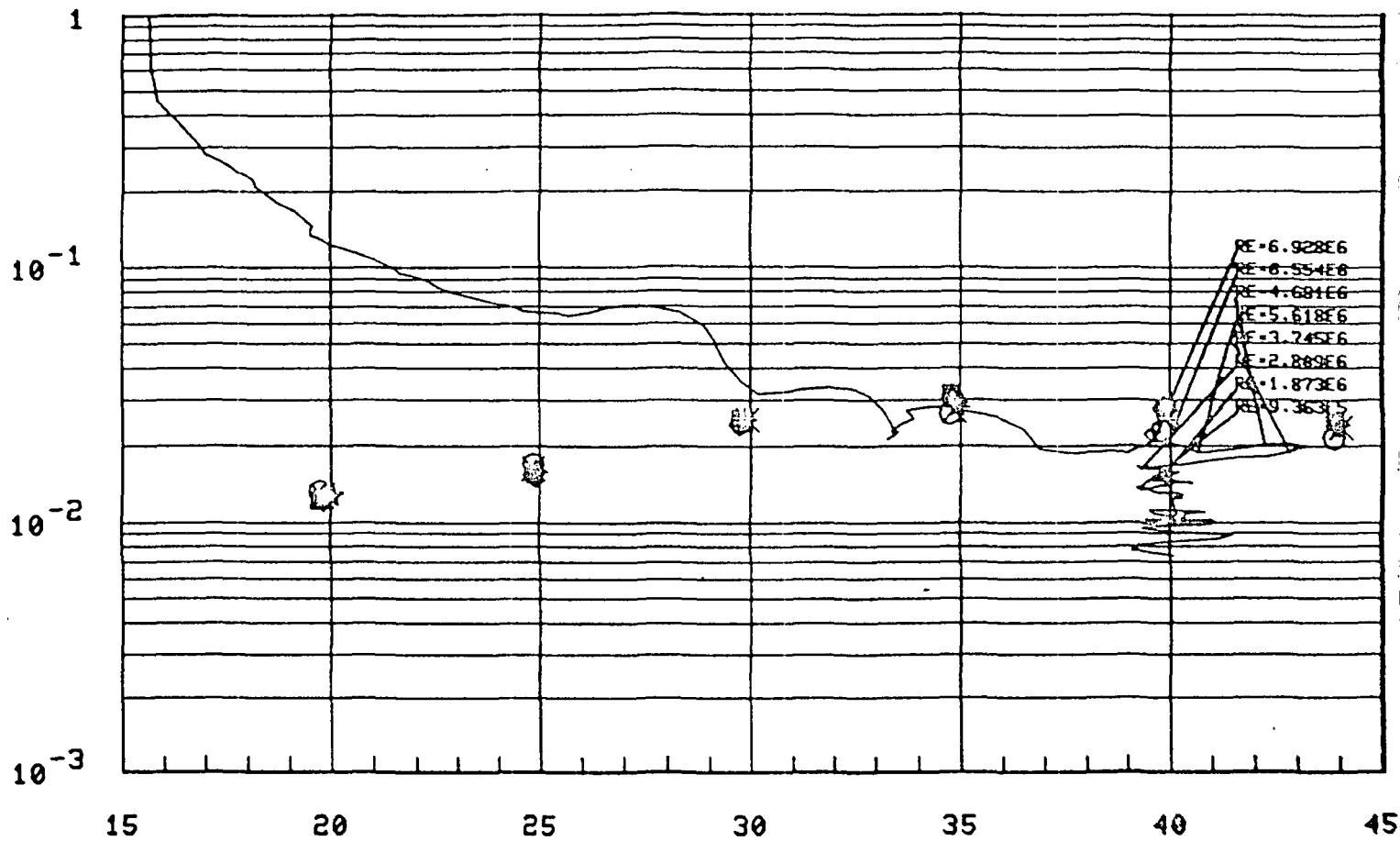
OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9896A/H-REF 200-1440 SEC

O □ ◇ △ ▽ + X

FILE COMPU - H\H-RW1

B-78



ANGLE-OF-ATTACK - DEG

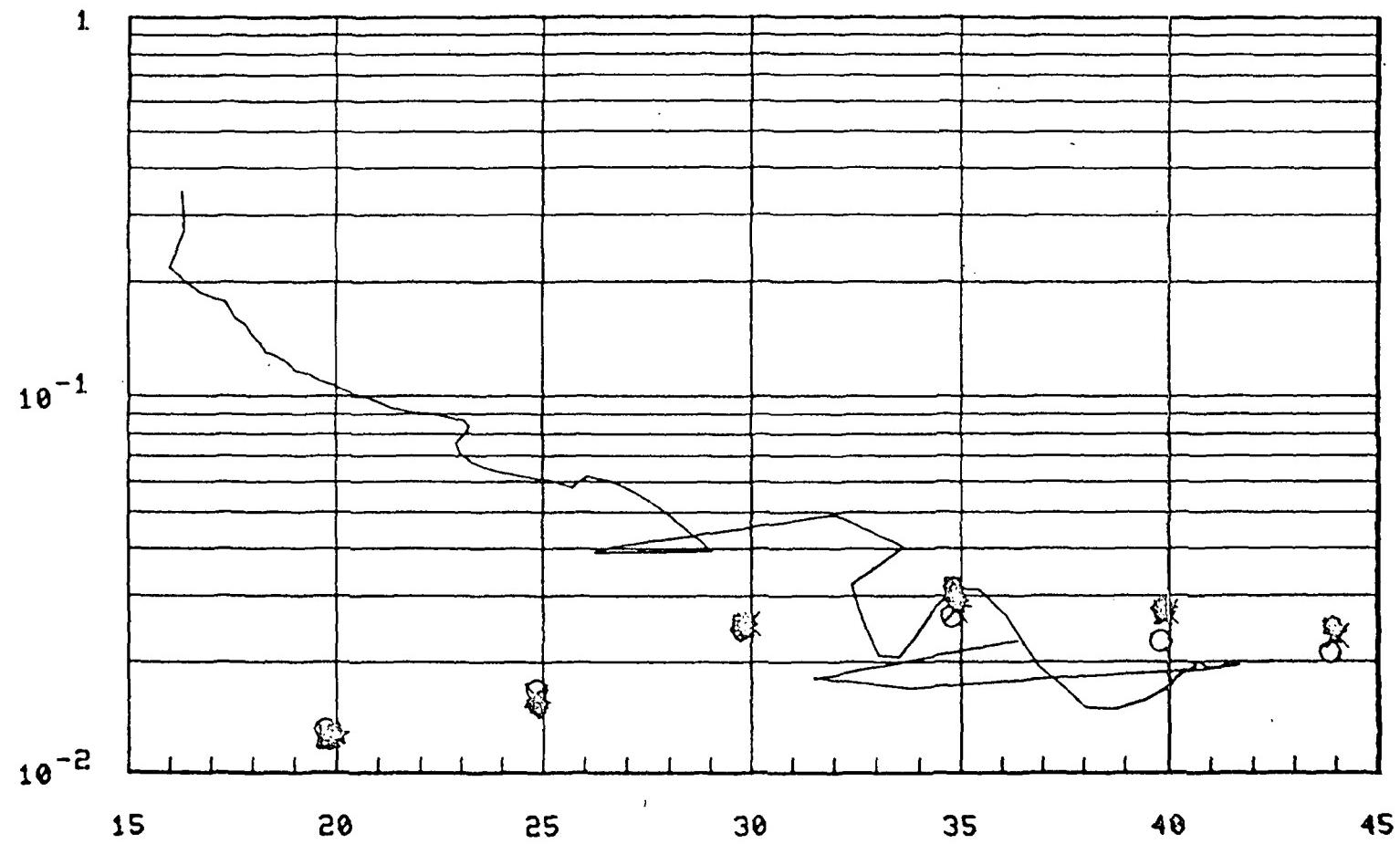
01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U07T9896A/H-REF 965-1360 SEC

O □ ◇ △ ★ + X



B-79

01/12/84
ANGLE-OF-ATTACK - DEG

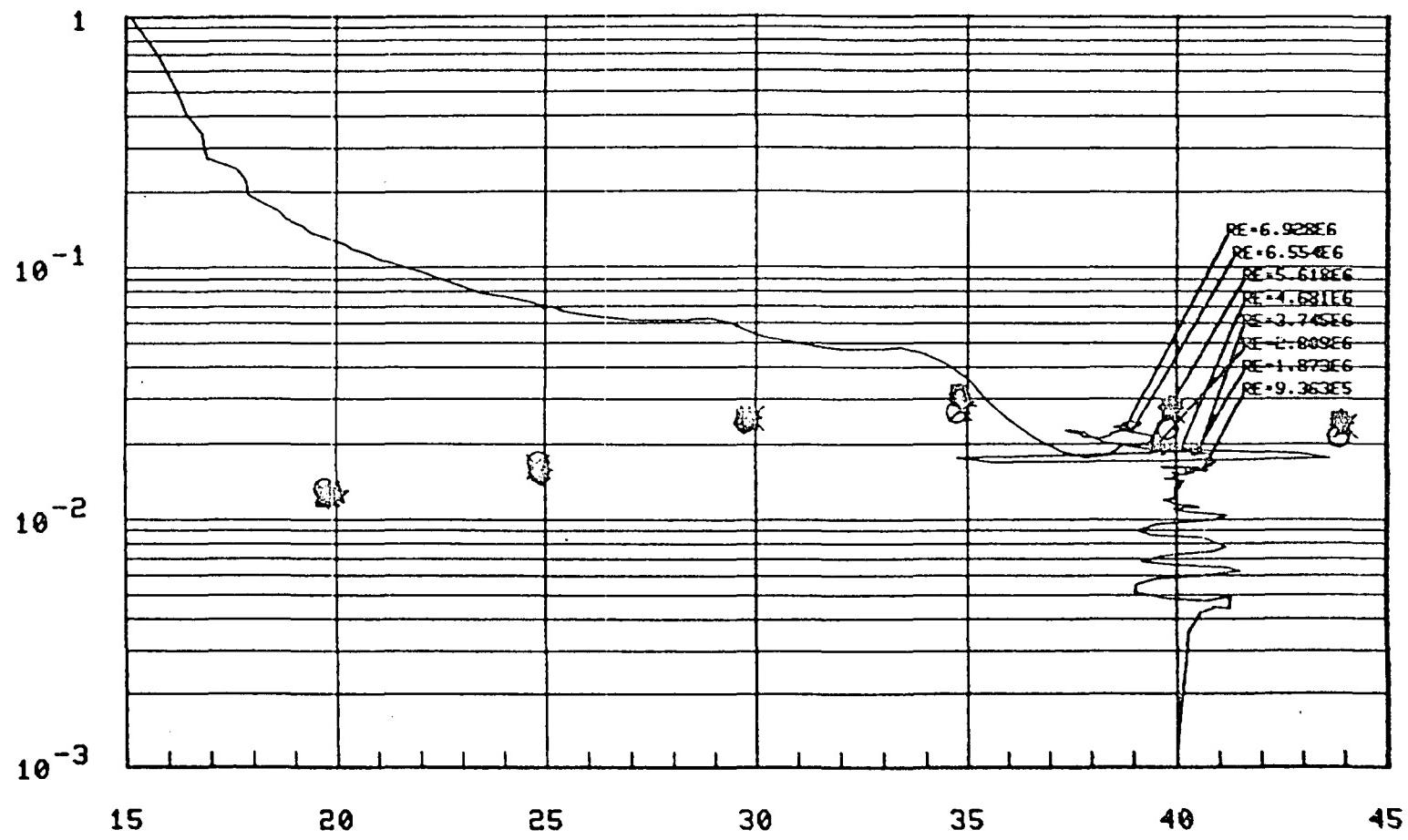
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

V07T9896A/H-REF 150-1430 SEC

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 FILE SOURCE -- H\H\REF



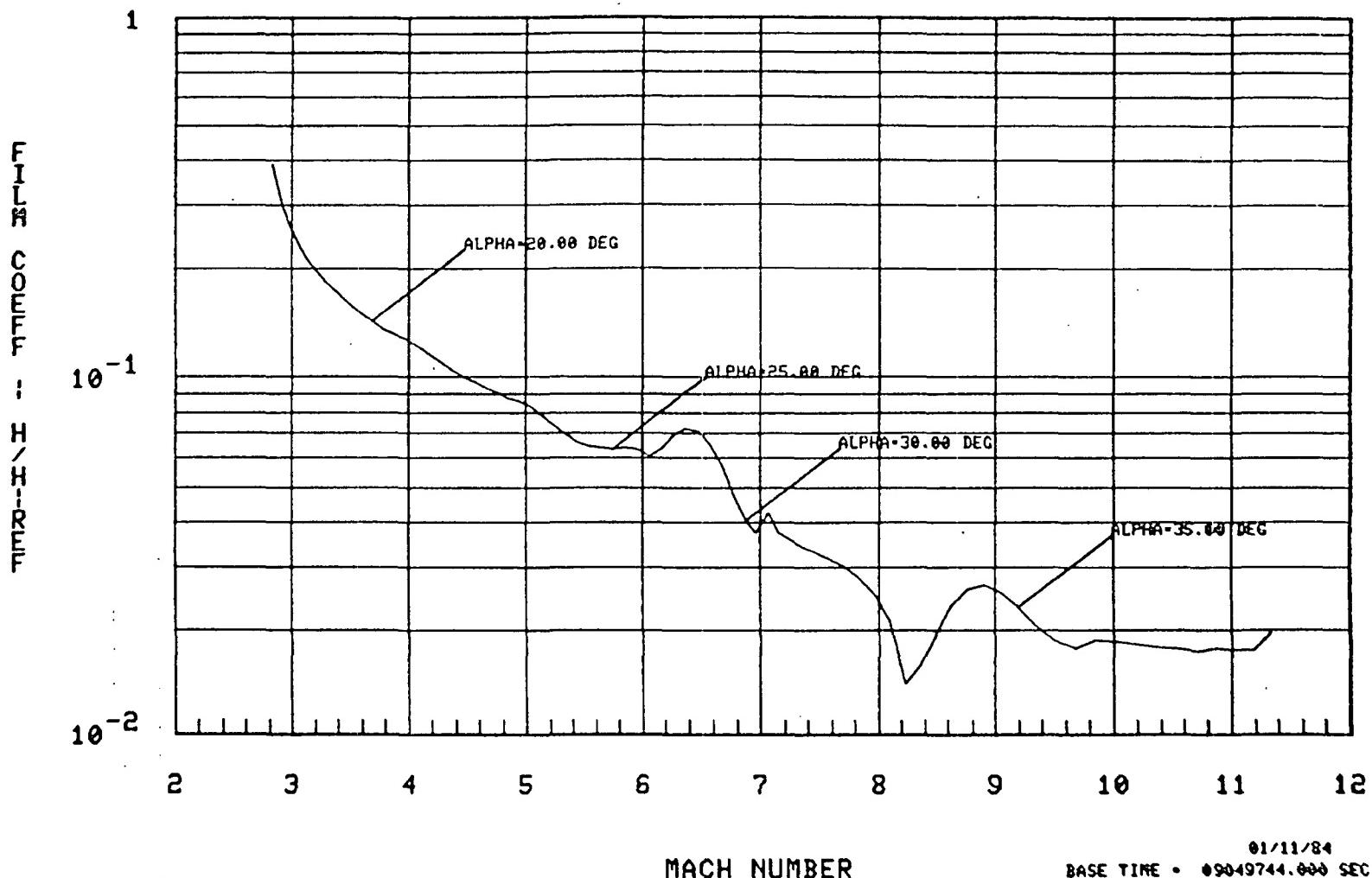
B-80

ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

U07T9896A/H-REF 1065-1500 SEC

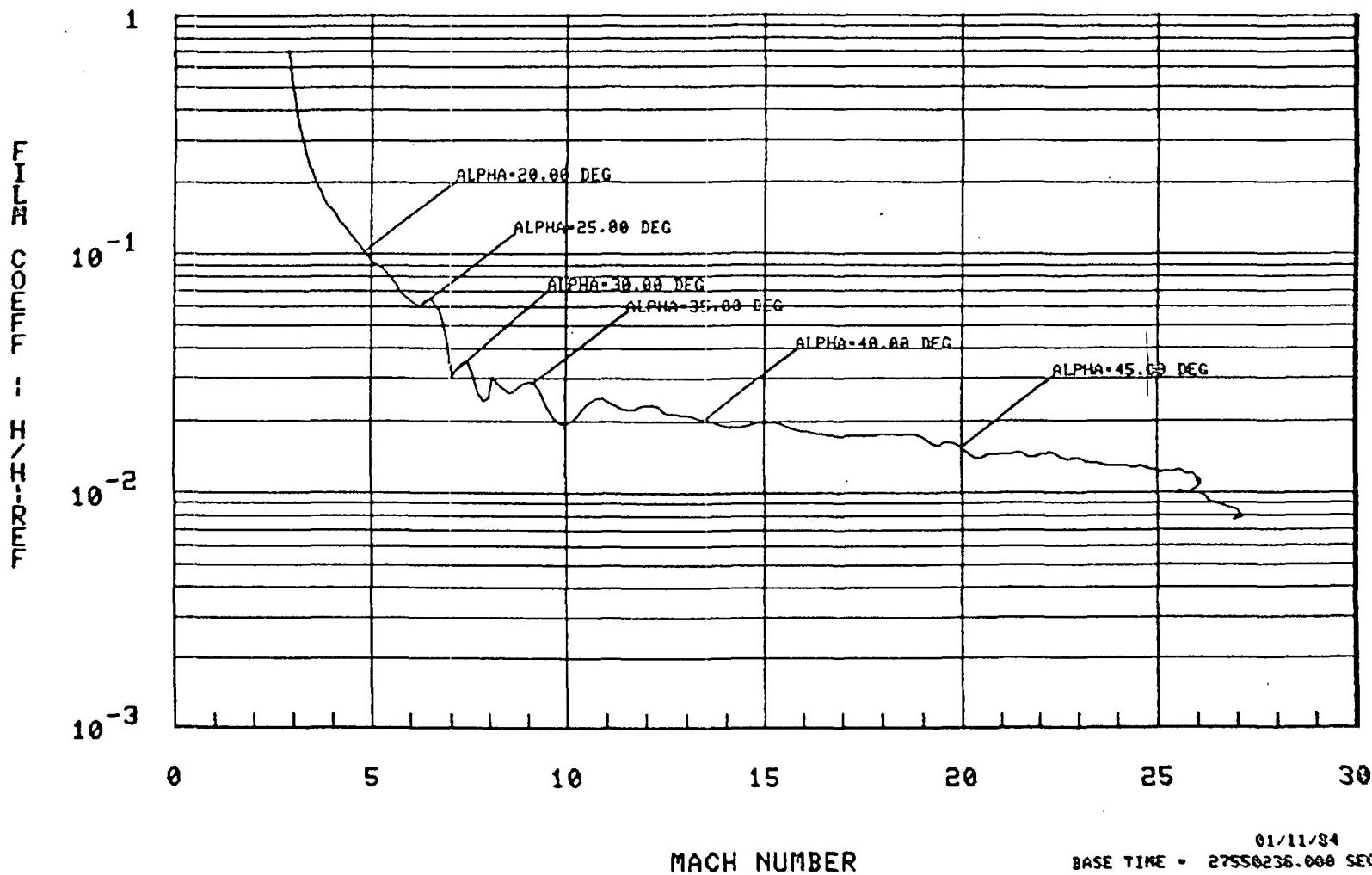


01/11/84

BASE TIME • 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

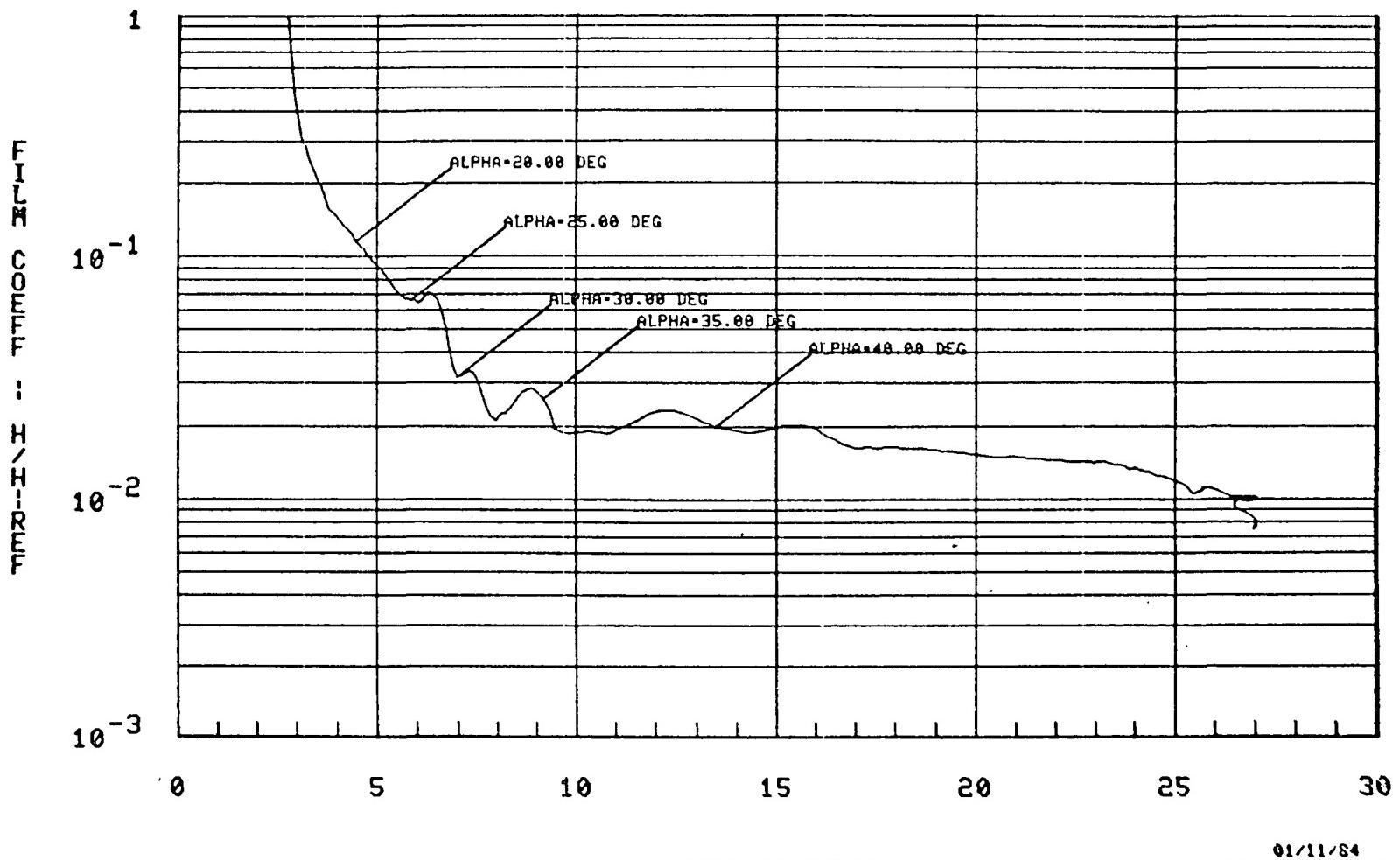
U07T9896A/H-REF 200-1530 SEC



01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

U07T9896A/H-REF 200-1440 SEC



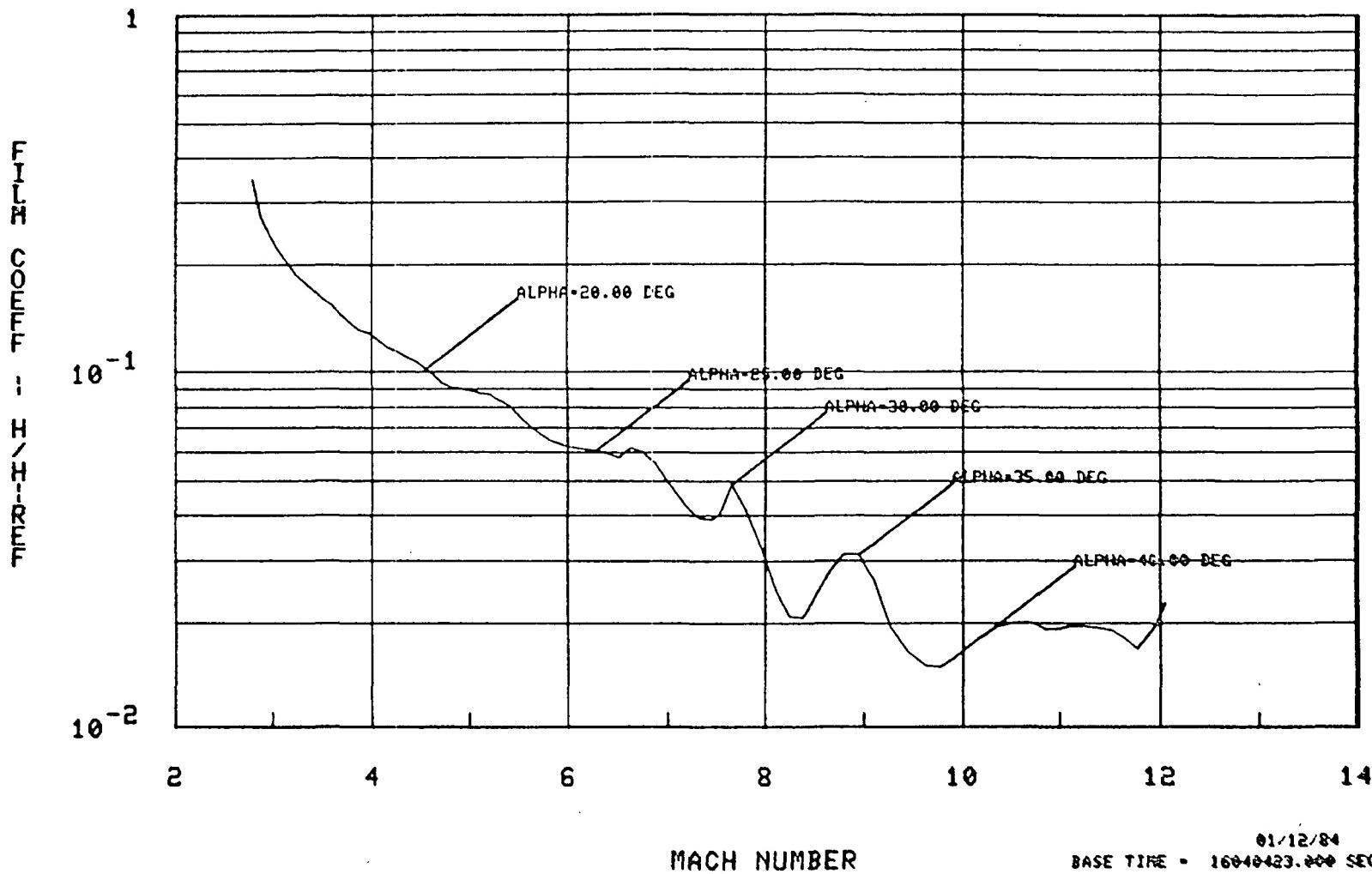
MACH NUMBER

01/11/84

BASE TIME = 07745694.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

U07T9896A/H-REF 965-1360 SEC

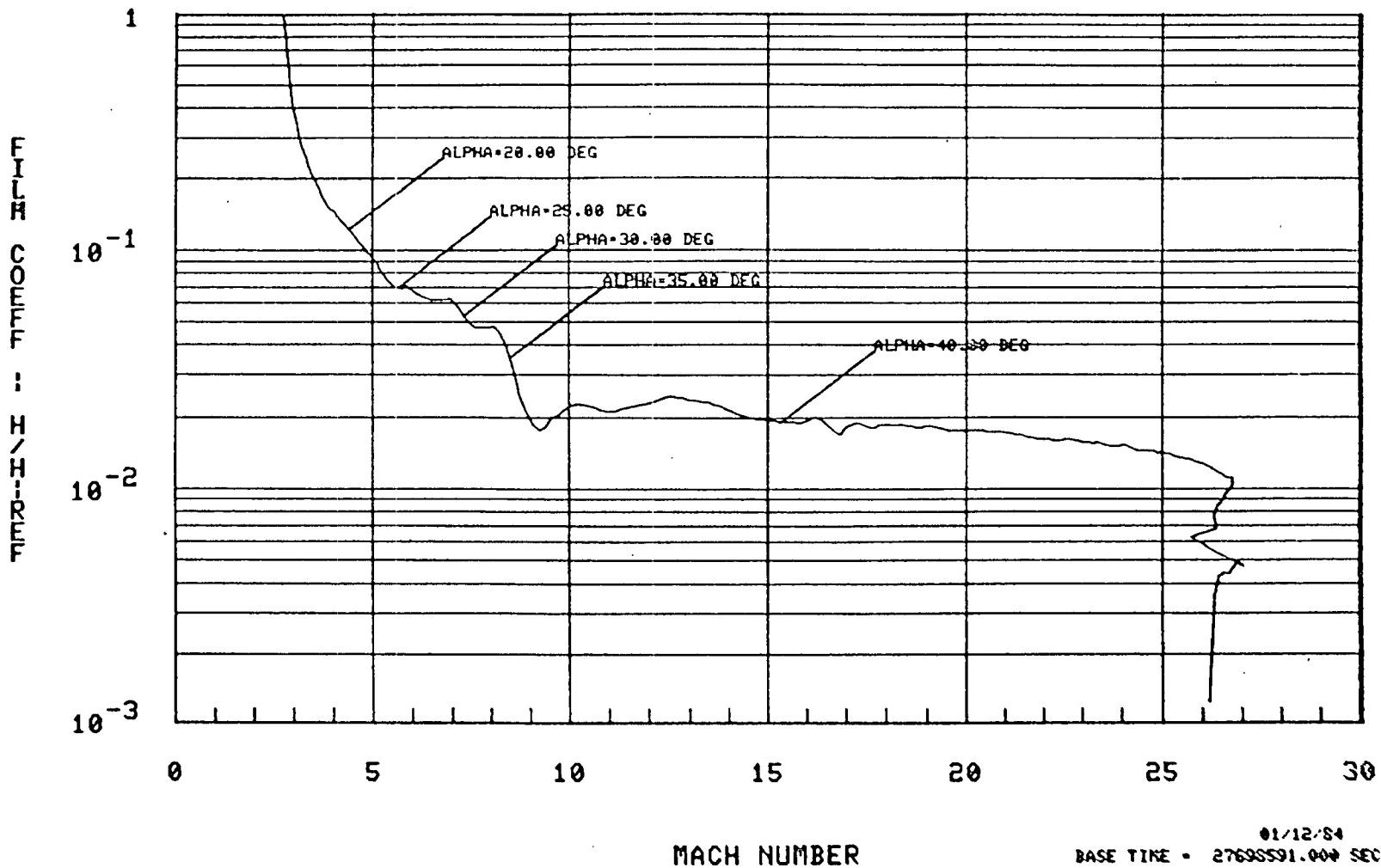


01/12/84

BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

U07T9896A/H-REF 150-1430 SEC



B-85

MACH NUMBER

01/12/84

BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

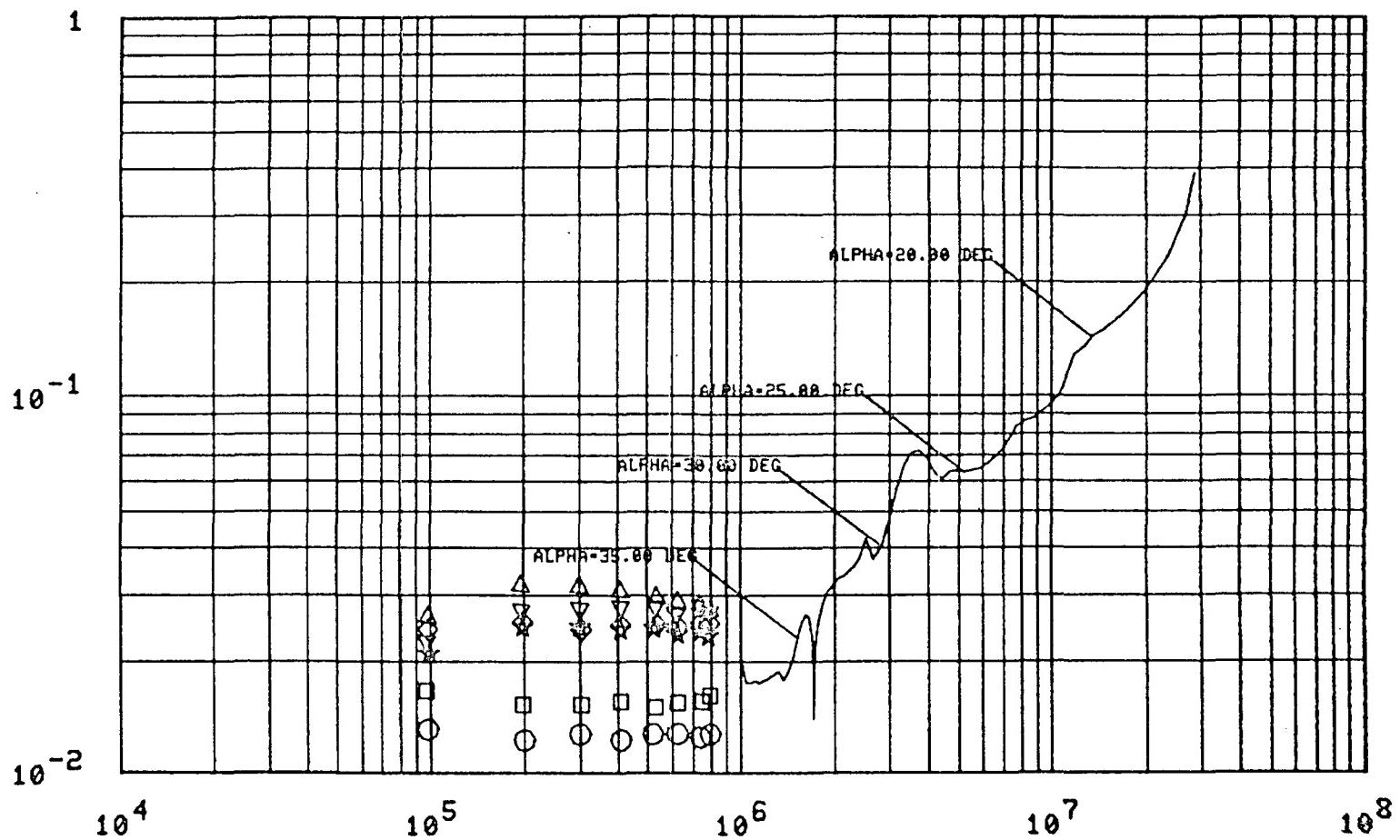
○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U87T9896A/H-REF 1865-1500 SEC

FILE CODE : H/H-REF

B-86



REYNOLDS NUMBER (NS)

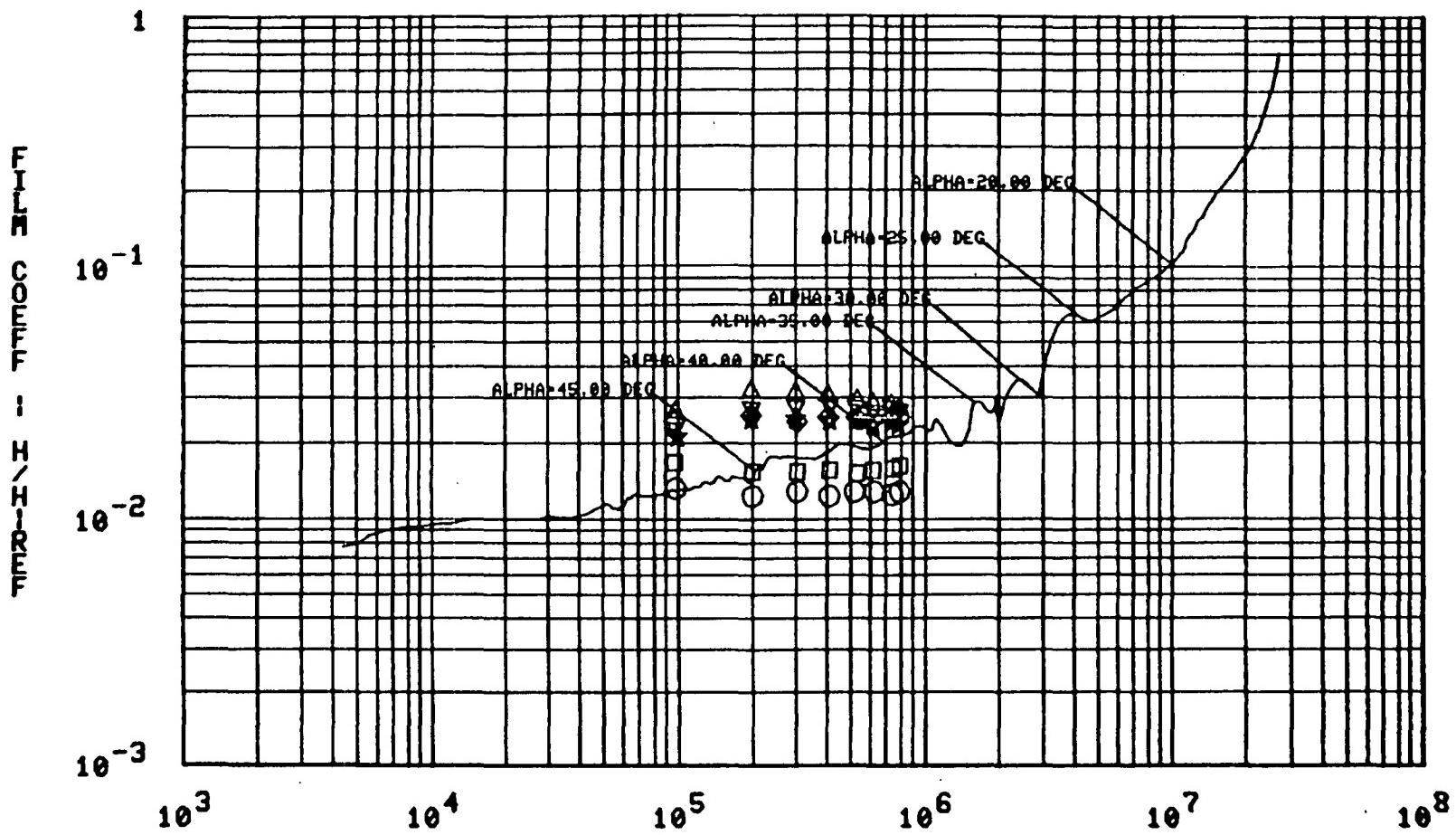
01/11/84
 BASE TIME = 09949744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9896A/H-REF 200-1530 SEC



B-87

REYNOLDS NUMBER (NS)

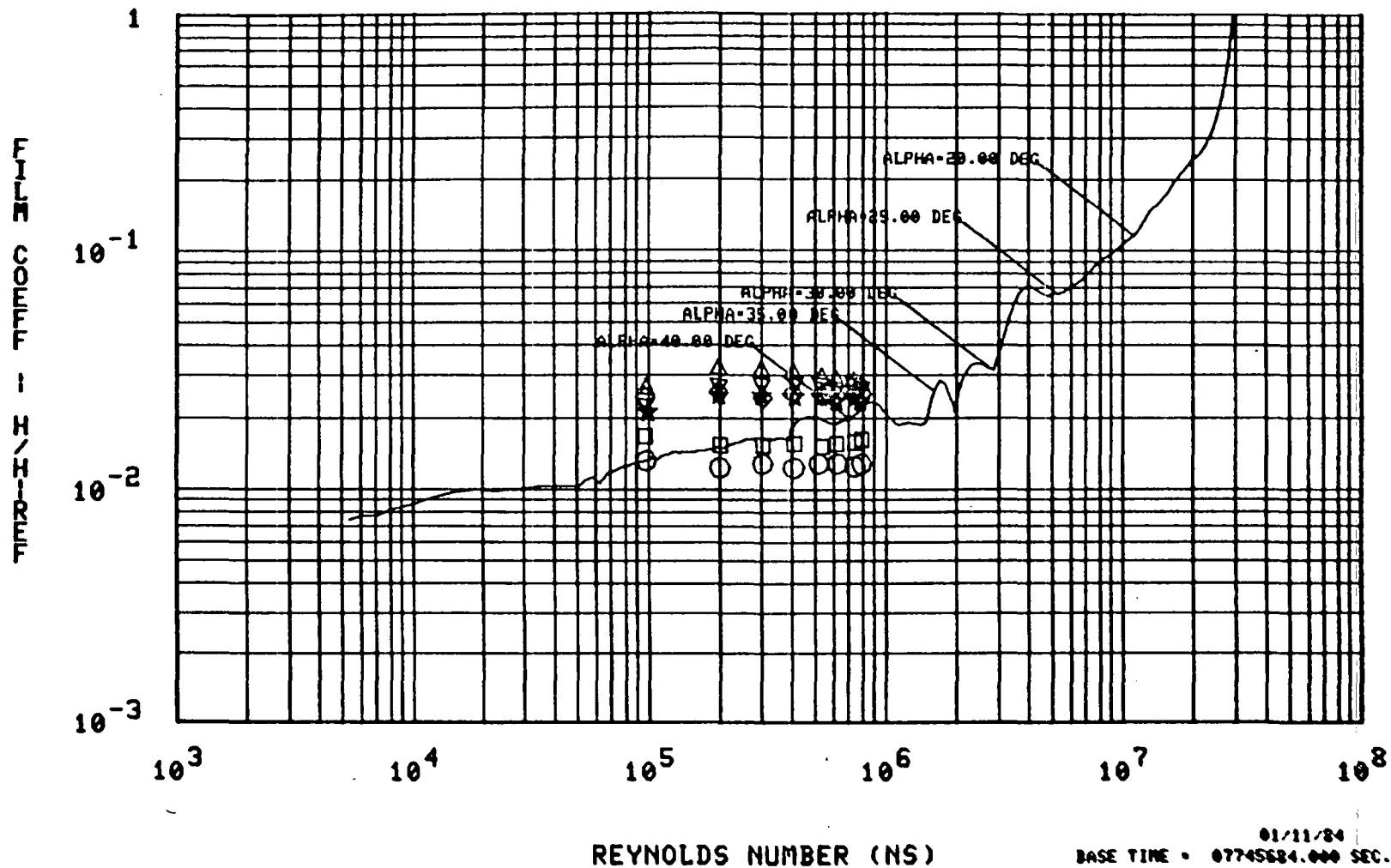
01/11/84
 BASE TIME = 27556236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400



OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9896A/H-REF 200-1440 SEC



REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

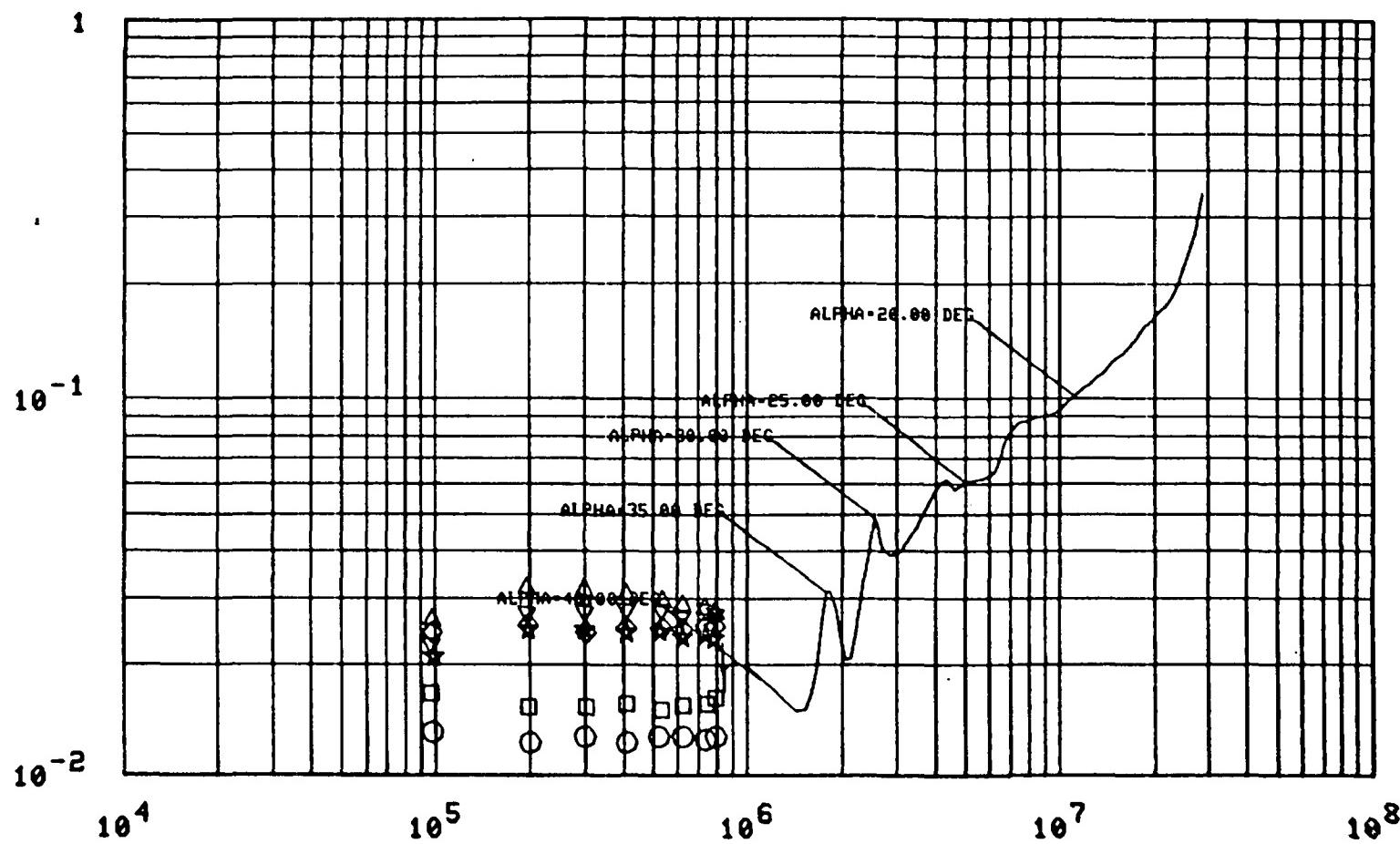
○ □ △ ▽ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9896A/H-REF 965-1360 SEC

B-89

FILM COEFF - H/H-REF



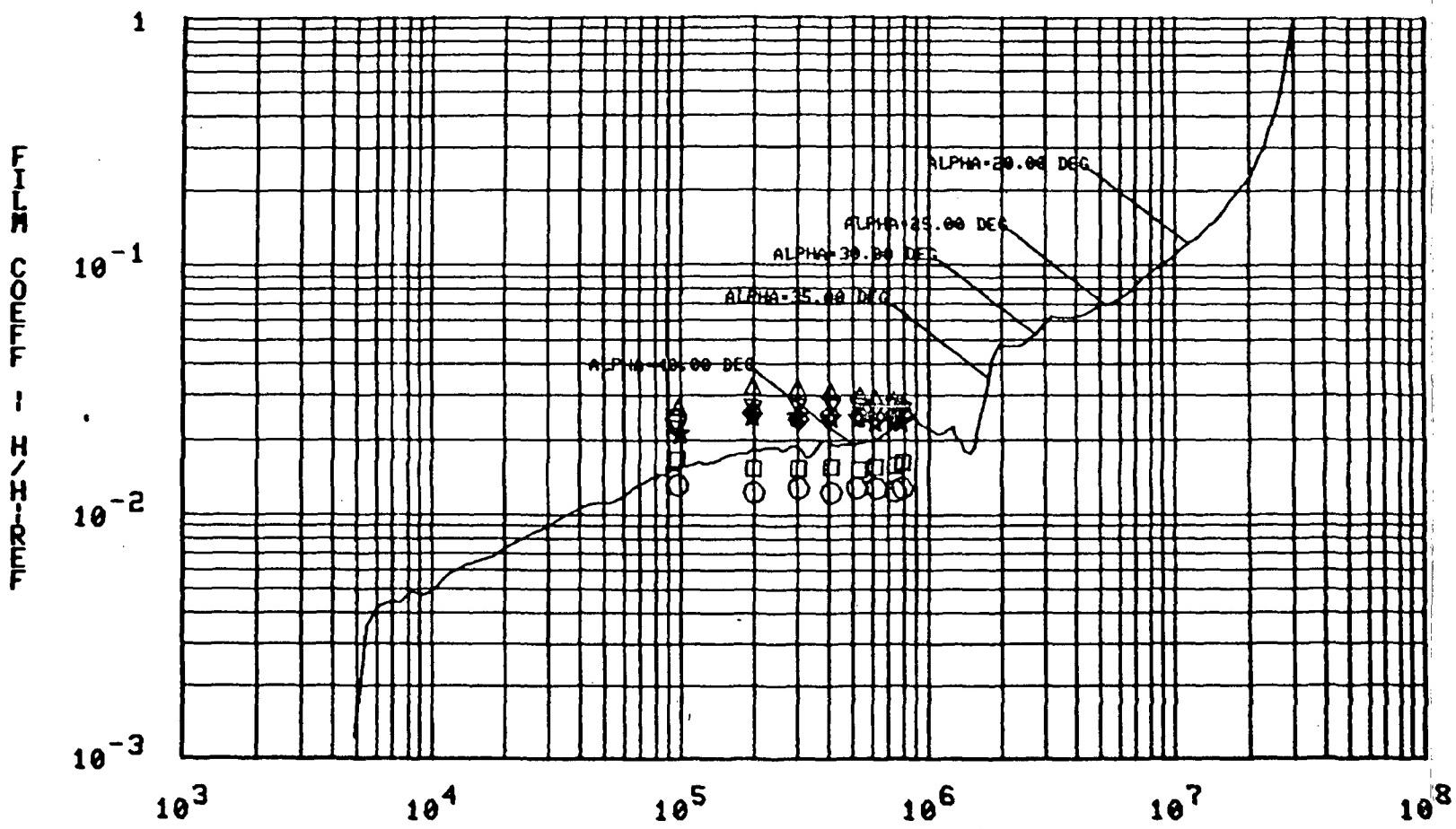
REYNOLDS NUMBER (Ns)

01/12/84
 BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

VE7T9896A/H-REF 150-1430 SEC



B-90

REYNOLDS NUMBER (NS)

01/12/84
BASE TIME - 27693591.000 SEC.

6/11/84

TIME - SECONDS

1100 1150 1200 1250 1300 1350 1400 1450 1500

0.0

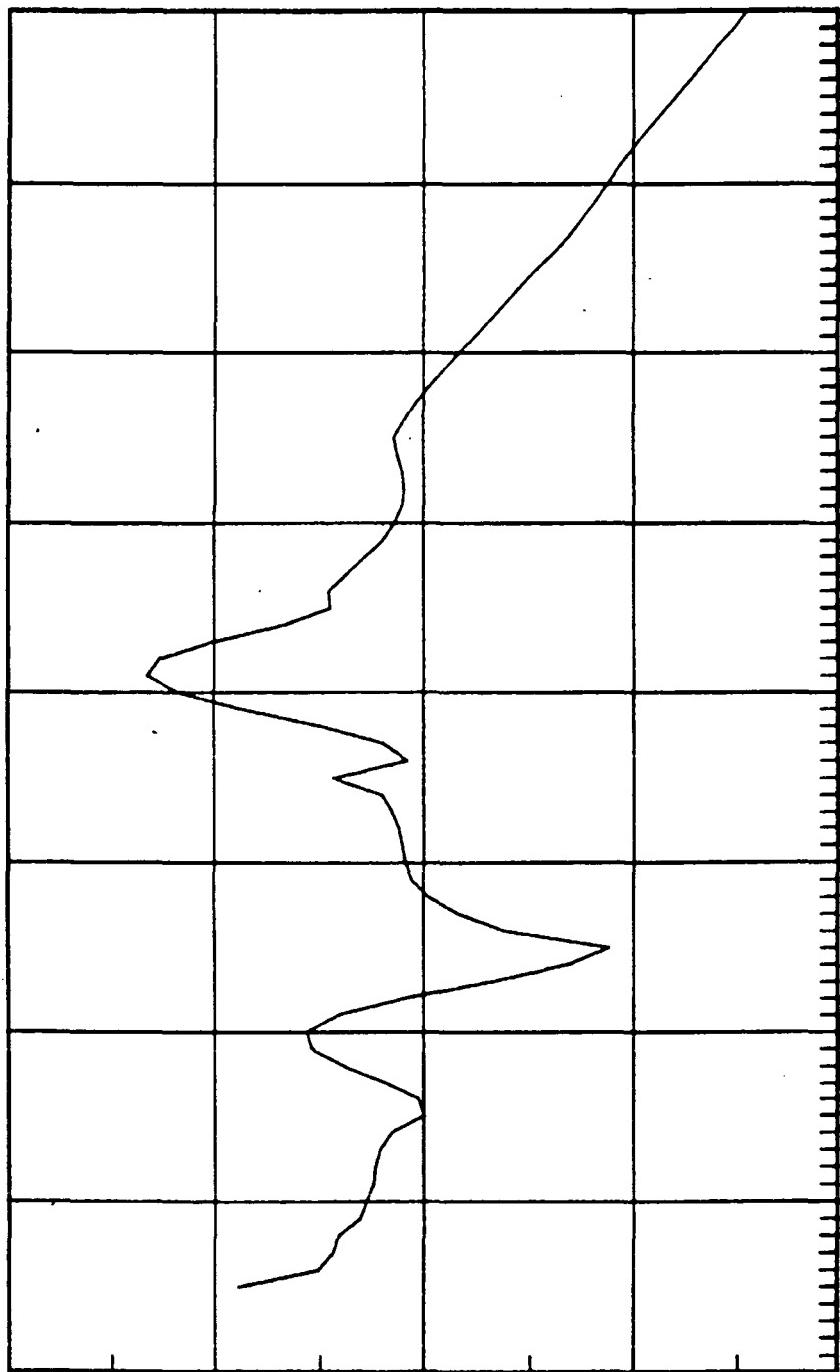
0.2

0.4

0.6

0.8

SEC - NUMBER/CUR - M-128 D2110W

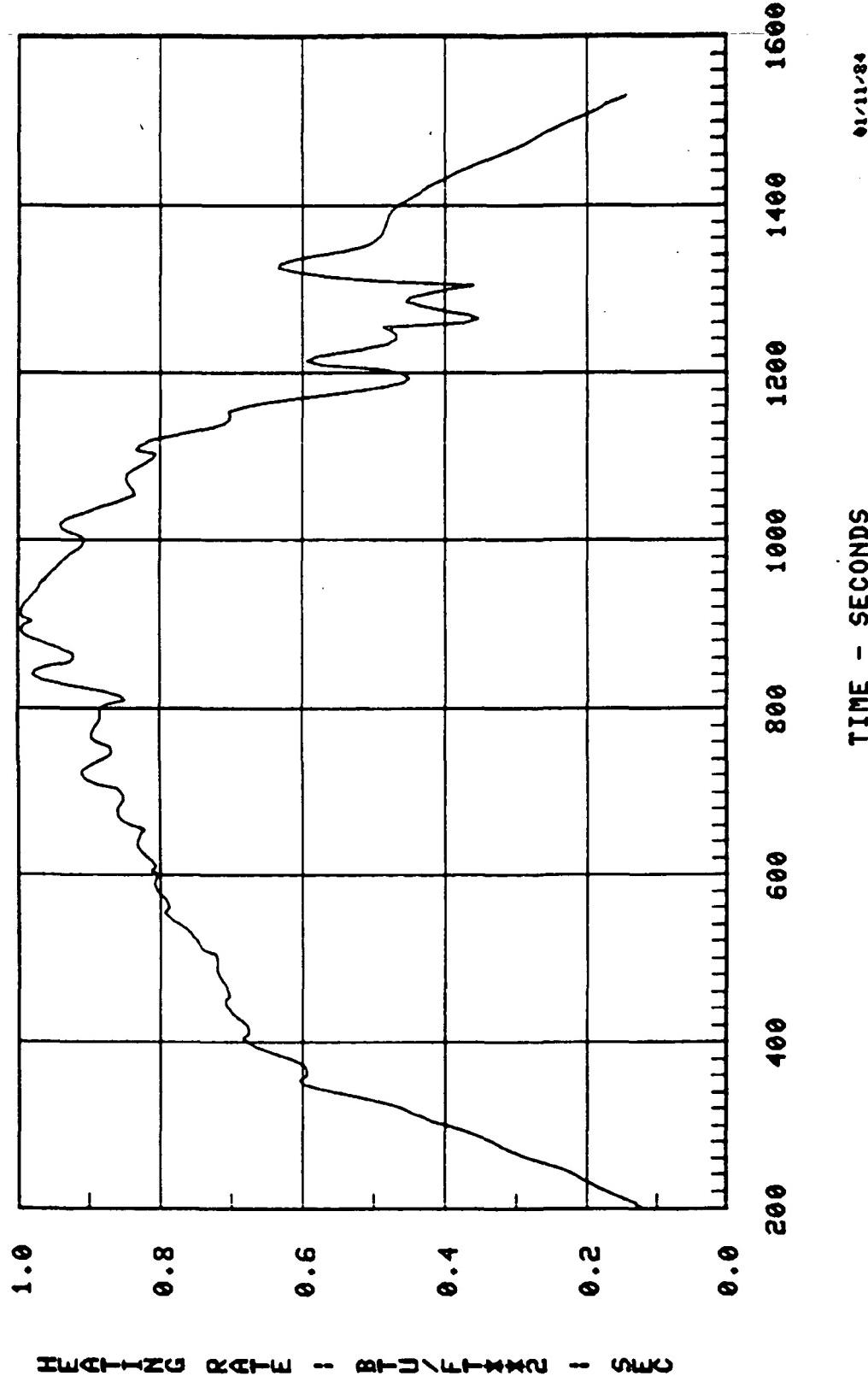


STS-1 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

U0779886A

STS-2 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

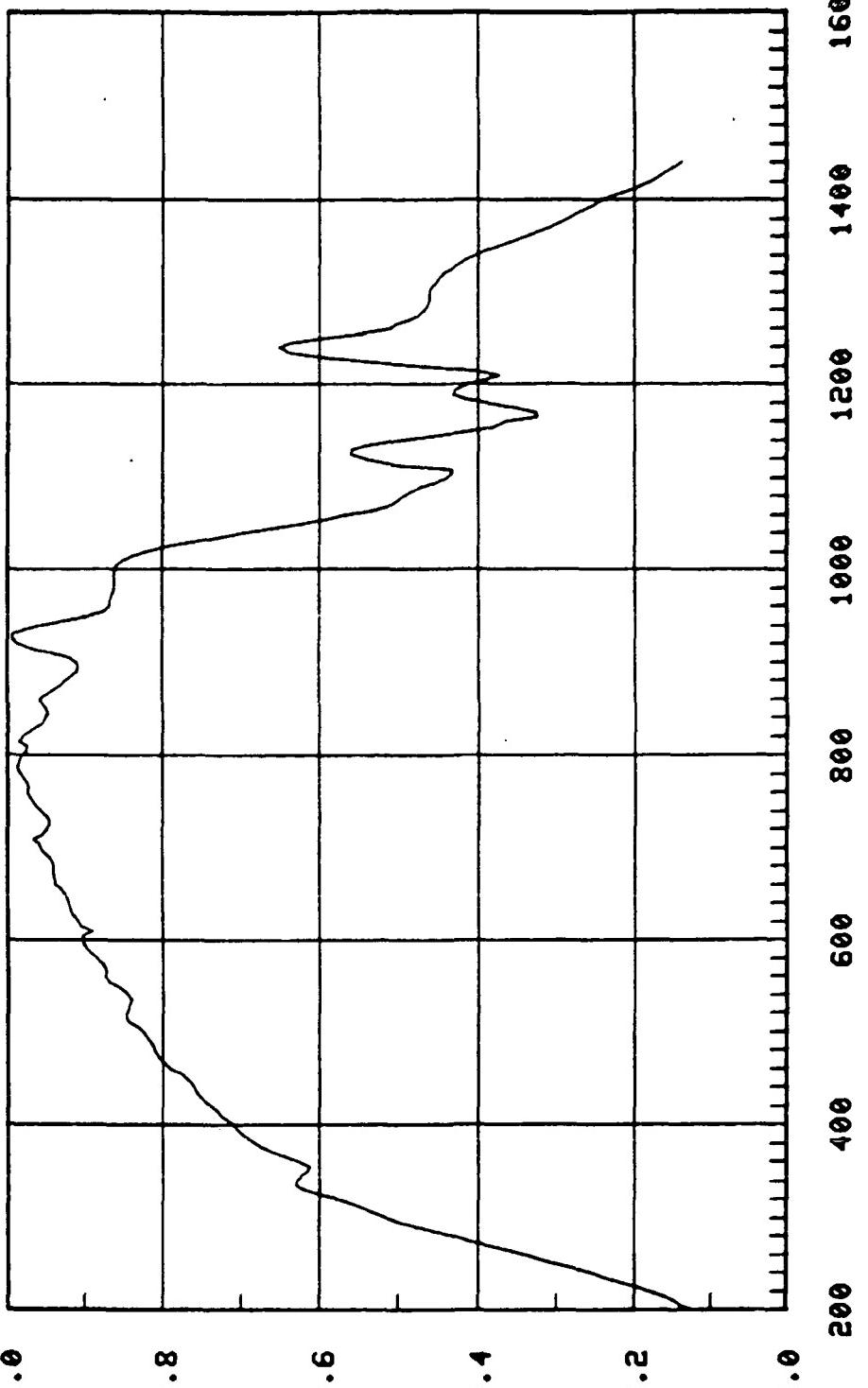
U0779896A



STS-3 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

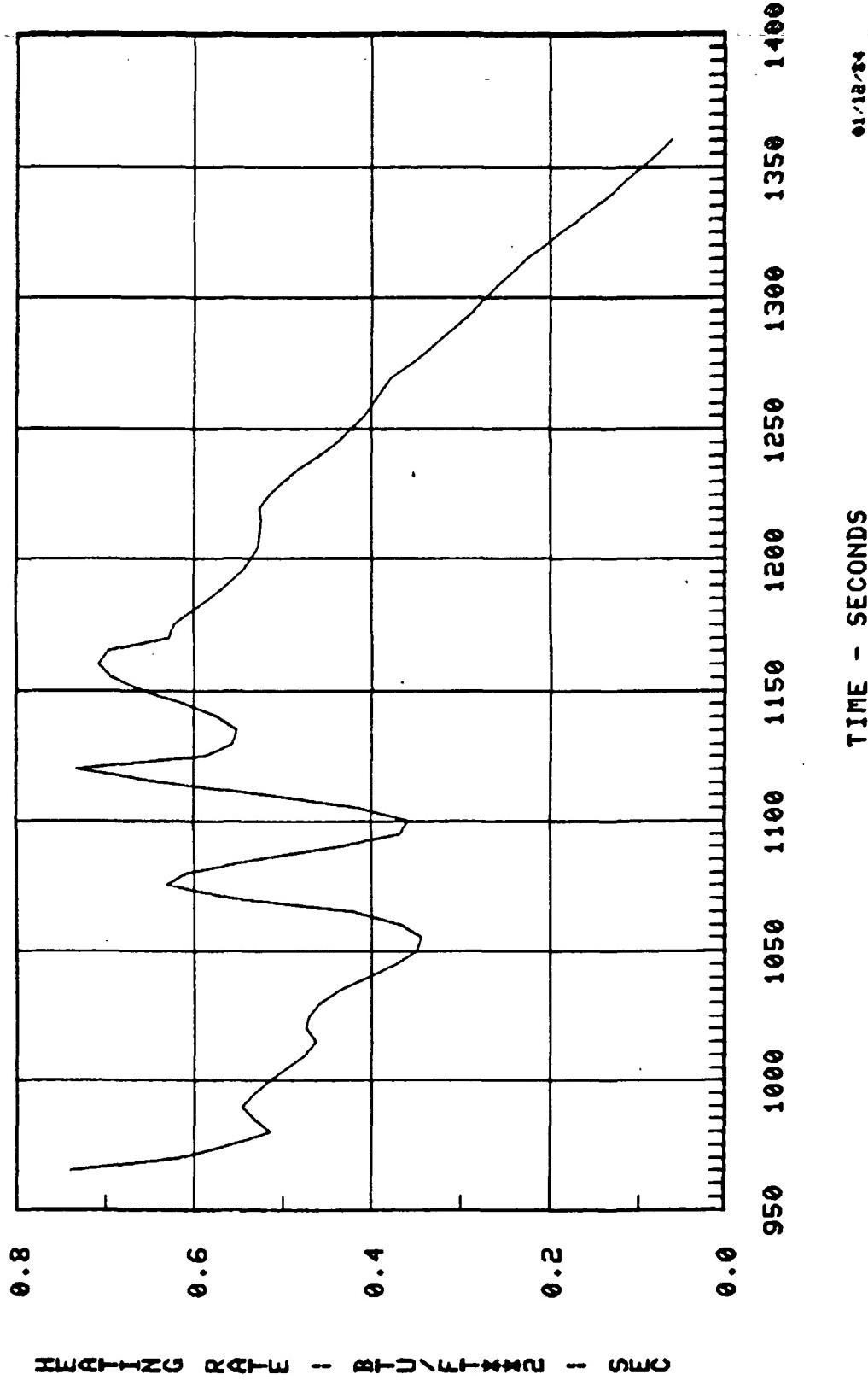
U97T9896A

WINDING RATE -- 0.1717MM/S



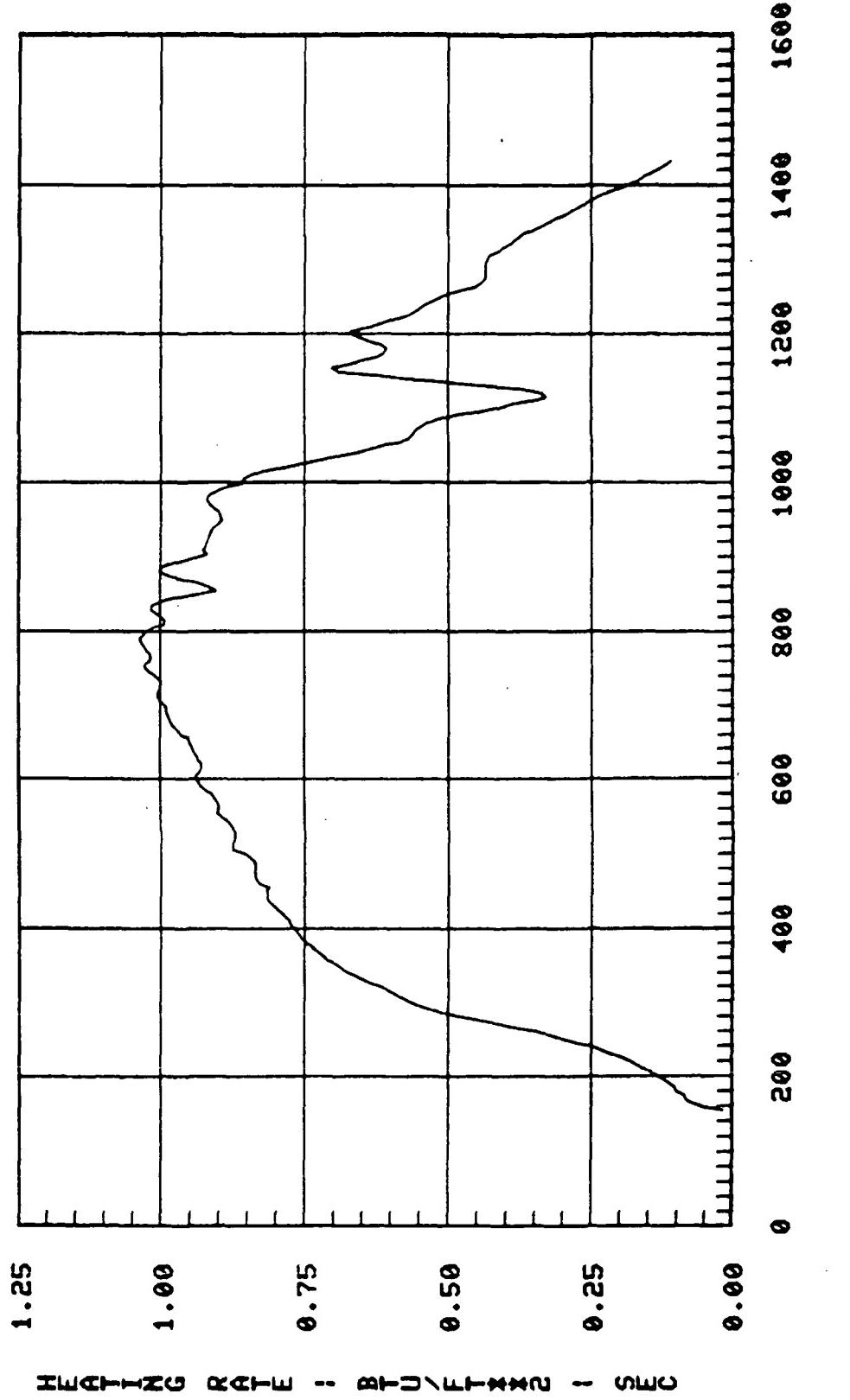
STS-4 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

U0779896A



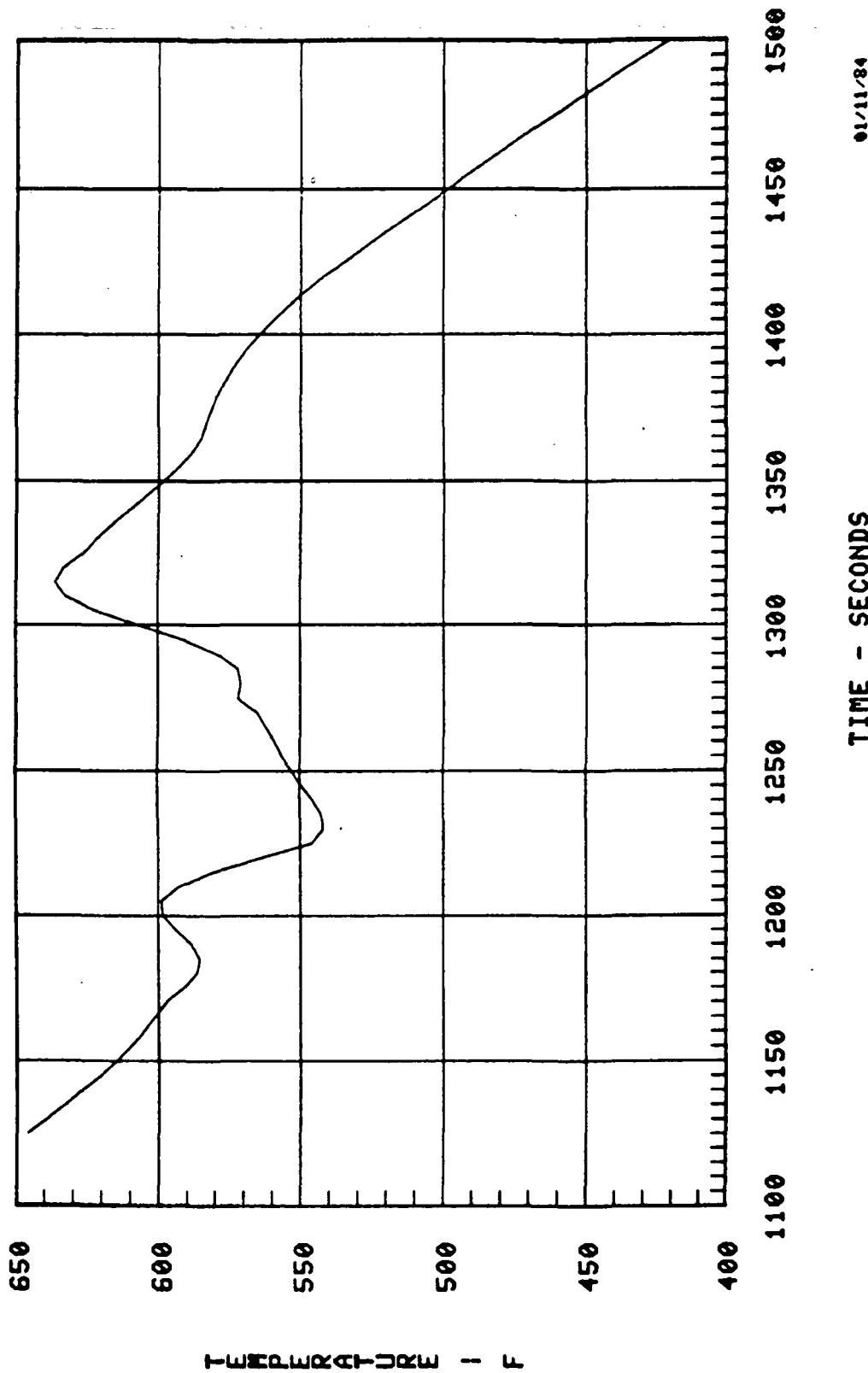
STS-5 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

U97T9896A



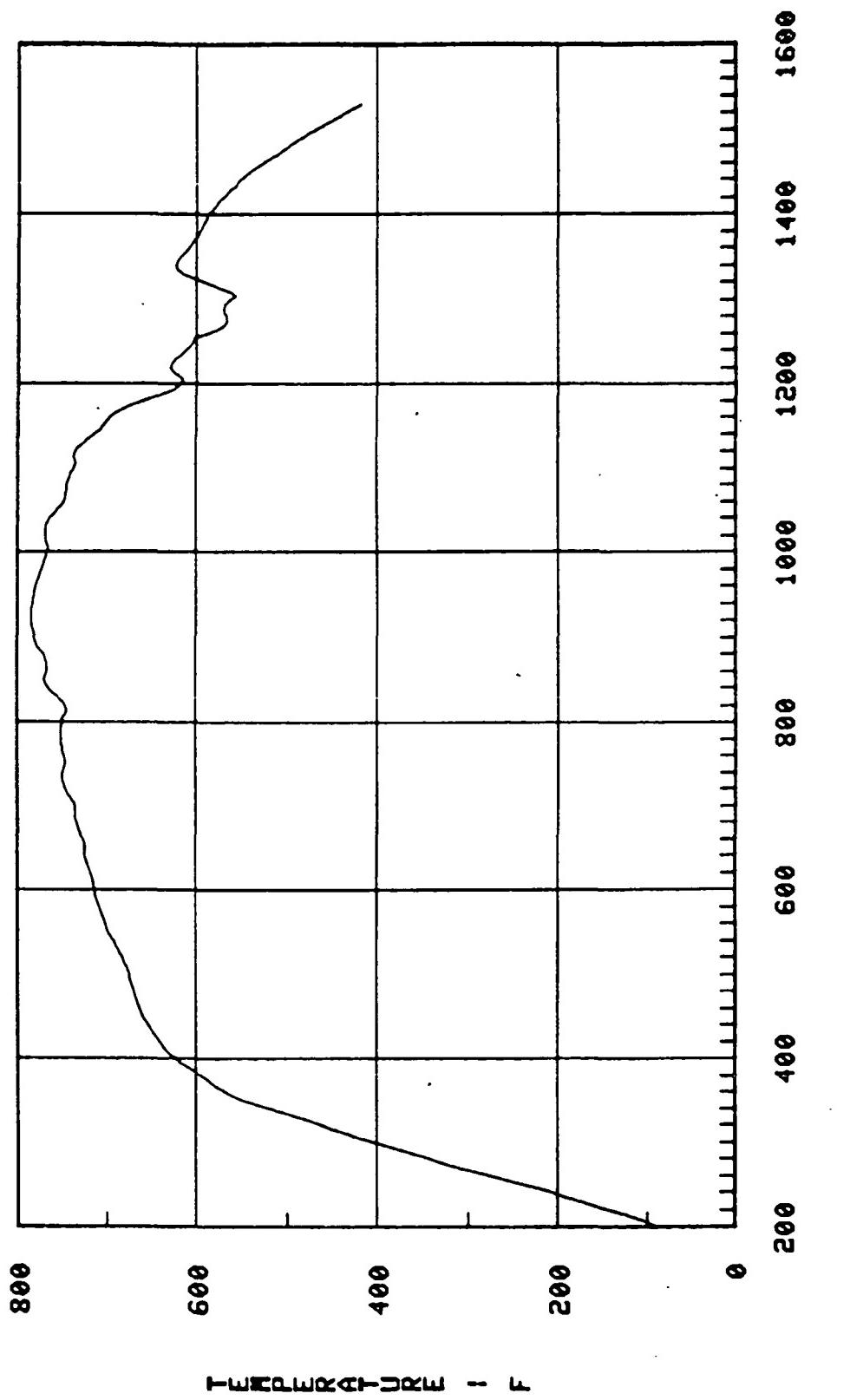
STS-1 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

00779896A



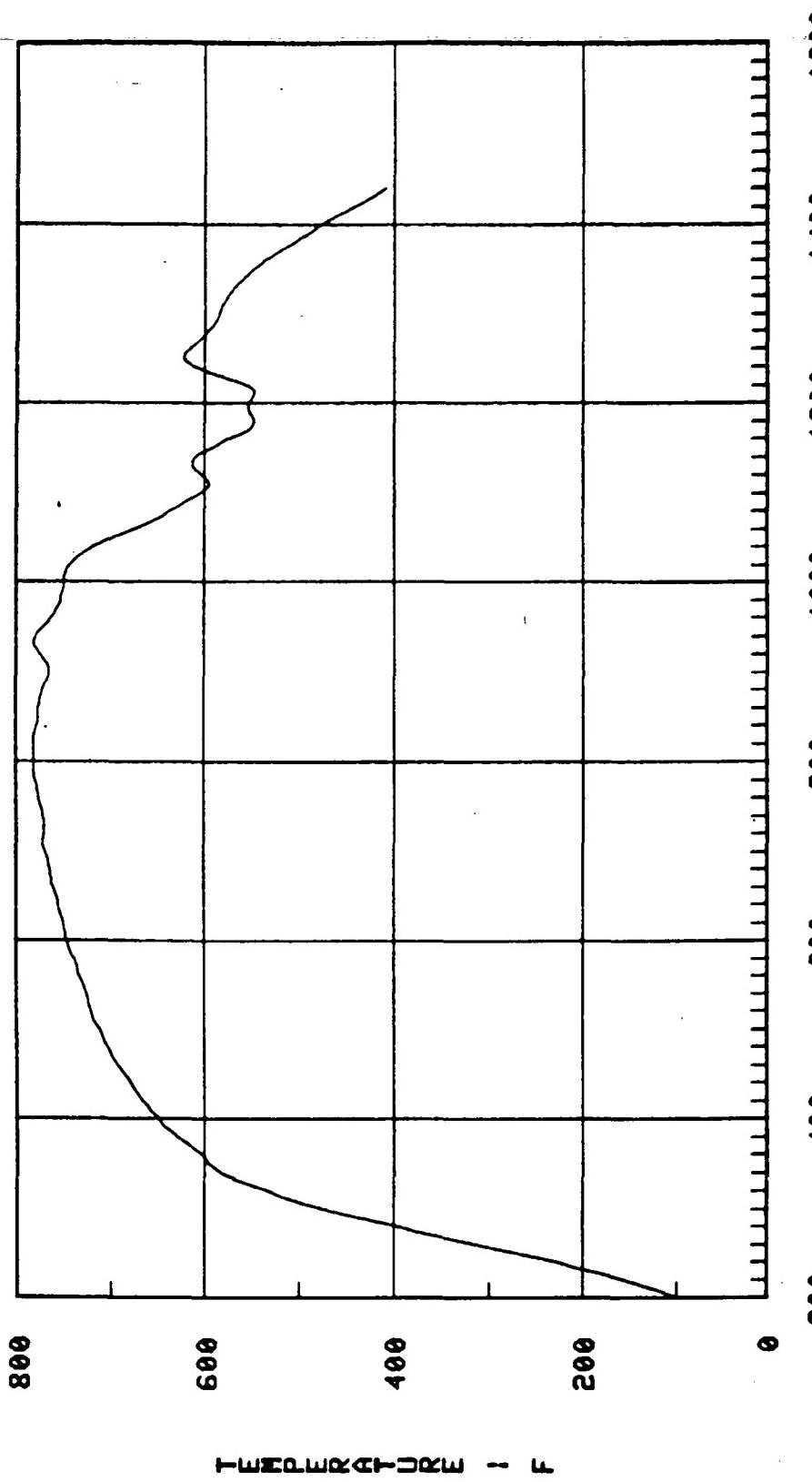
STS-2 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

U07T9896A



STS-3 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

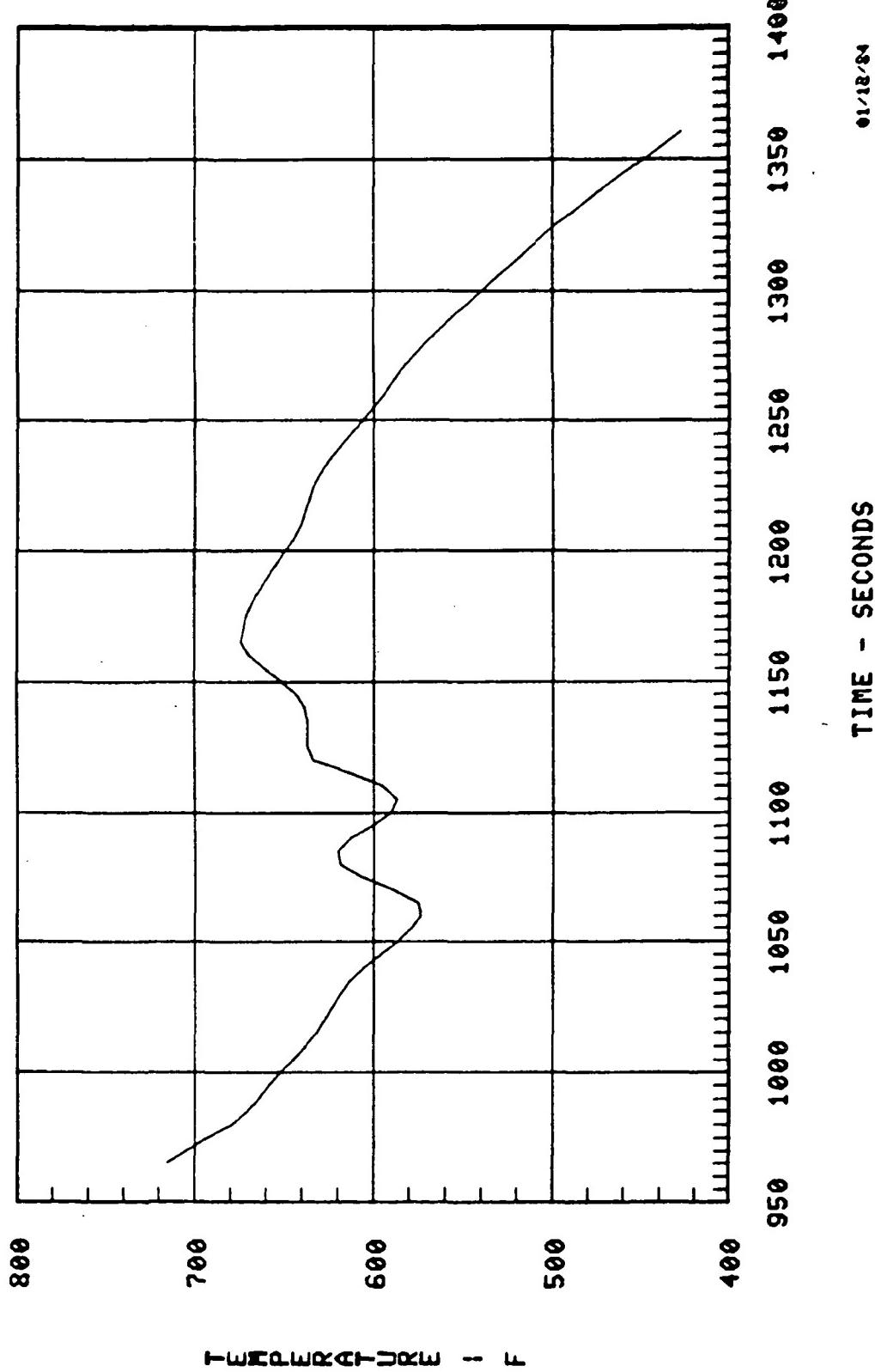
00779864



01/11/84

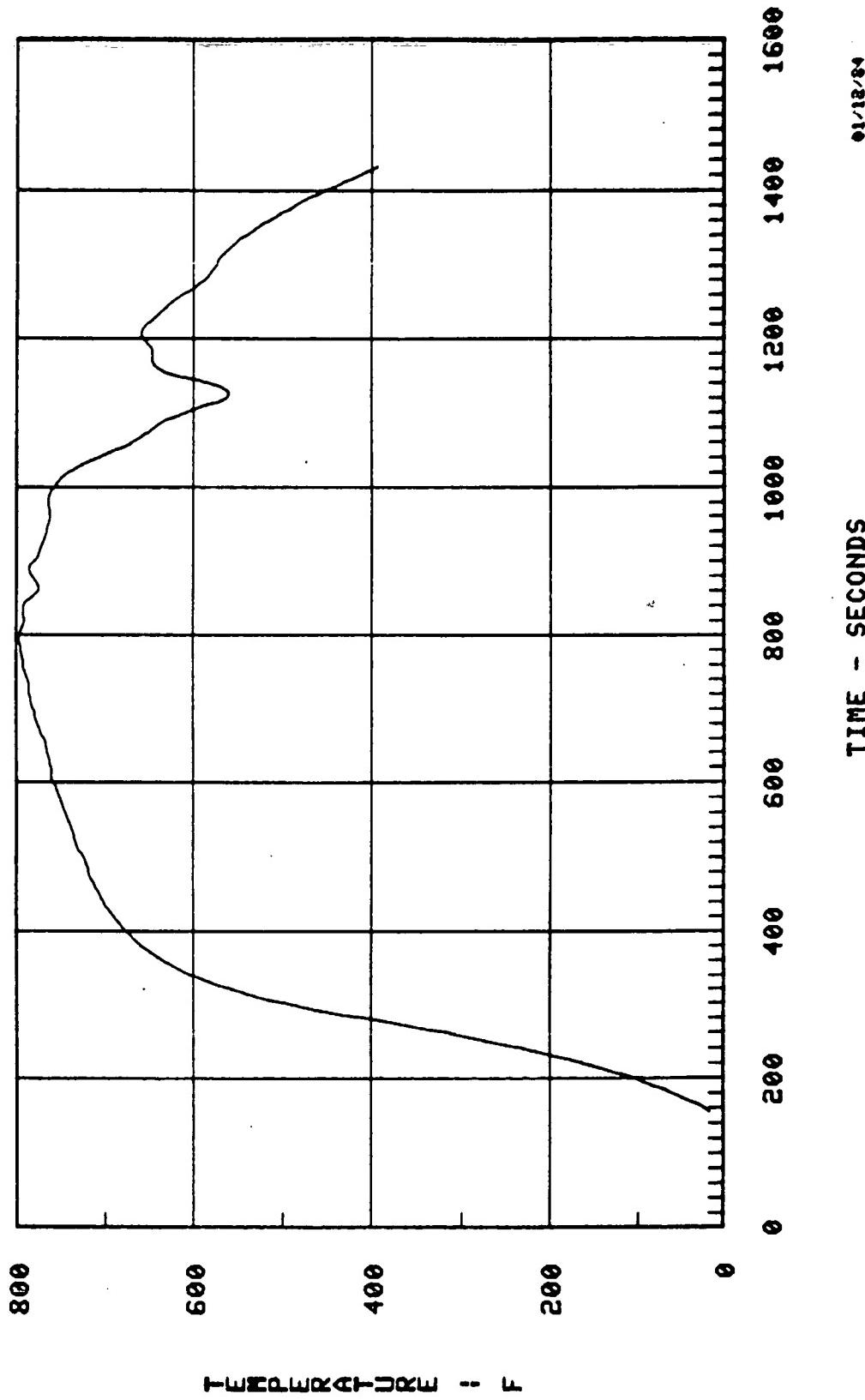
STS-4 (107 FT LENGTH SIDE FUS X/L=0.35) Z=400

U07T9896A



STS-5 (107 FT LENGTH SIDE FUS X/L=θ.35) Z=400

U07T9896A

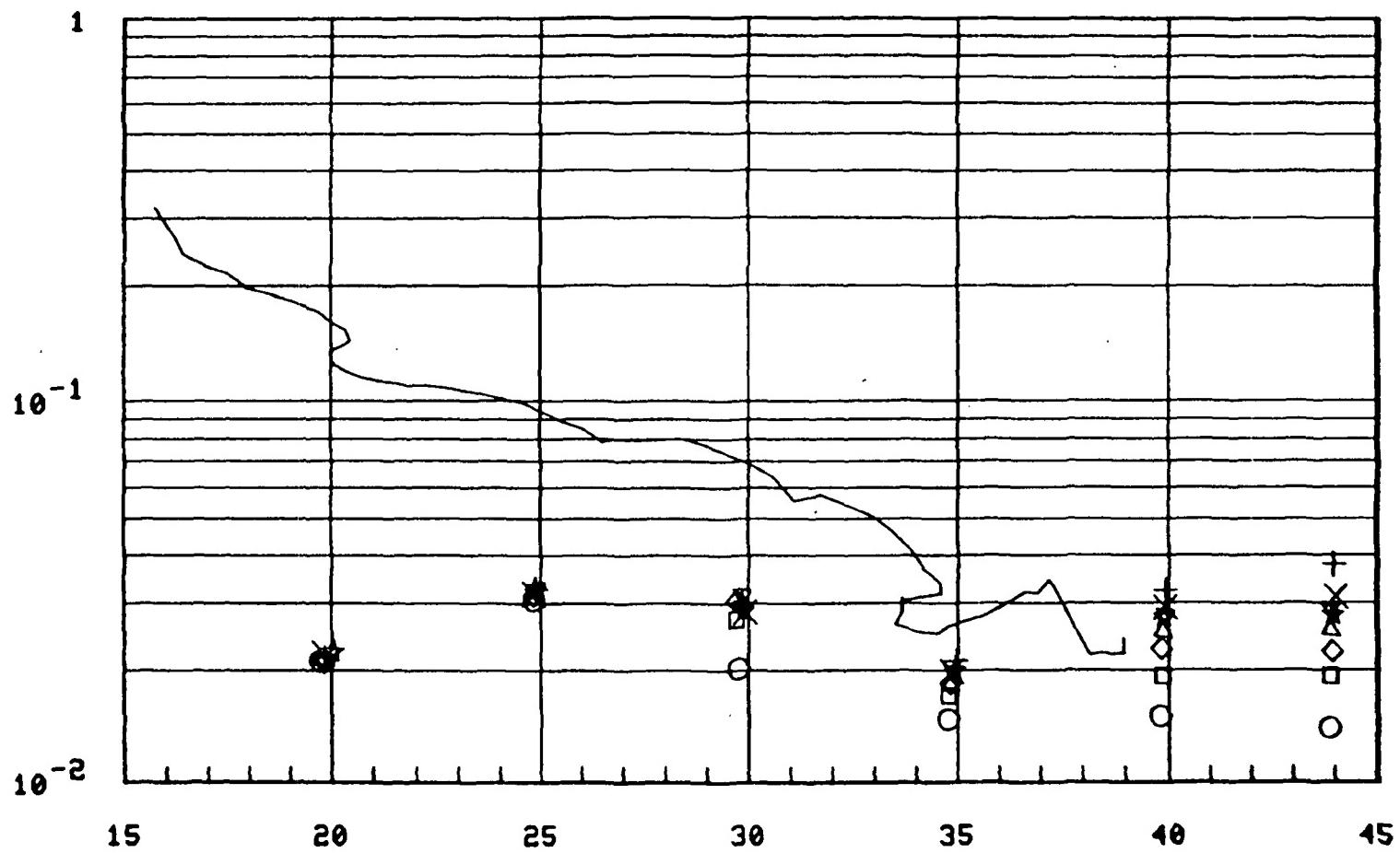


STS-1 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9897A/H-REF 1065-1500 SEC

O □ △ ▽ ▷ ★ + X



B-101

01/11/84
ANGLE-OF-ATTACK - DEG

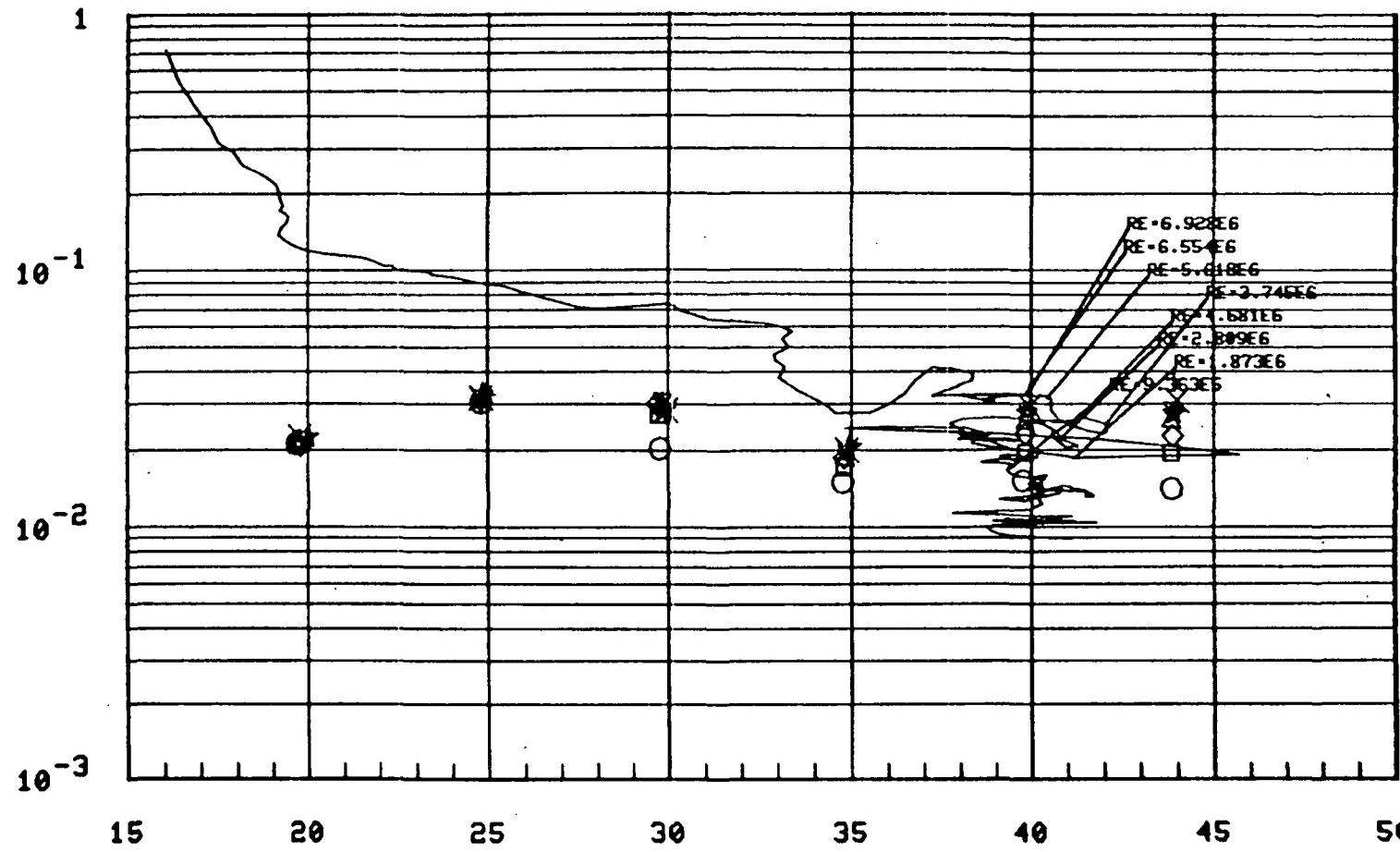
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9897A/H-REF 200-1530 SEC

O \square \diamond Δ ∇ \star
 X $+$



B-102

01/11/84
ANGLE-OF-ATTACK - DEG

BASE TIME = 27550236.000 SEC.

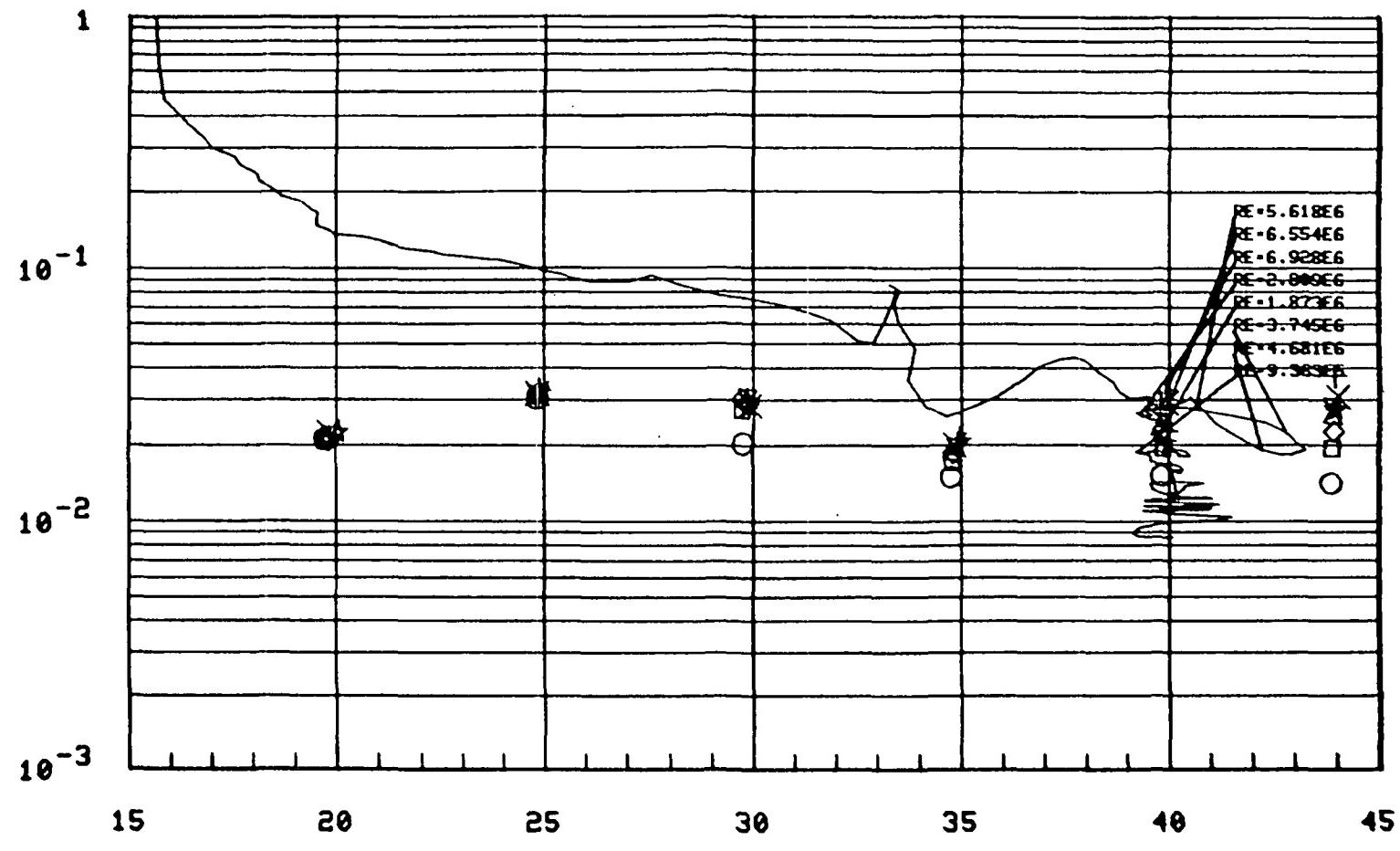
STS-3 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9897A/H-REF 200-1440 SEC

○ □ ◇ △ ▷ ★ + ×

B-103



01/11/84
ANGLE-OF-ATTACK - DEG

BASE TIME = 07745684.000 SEC.

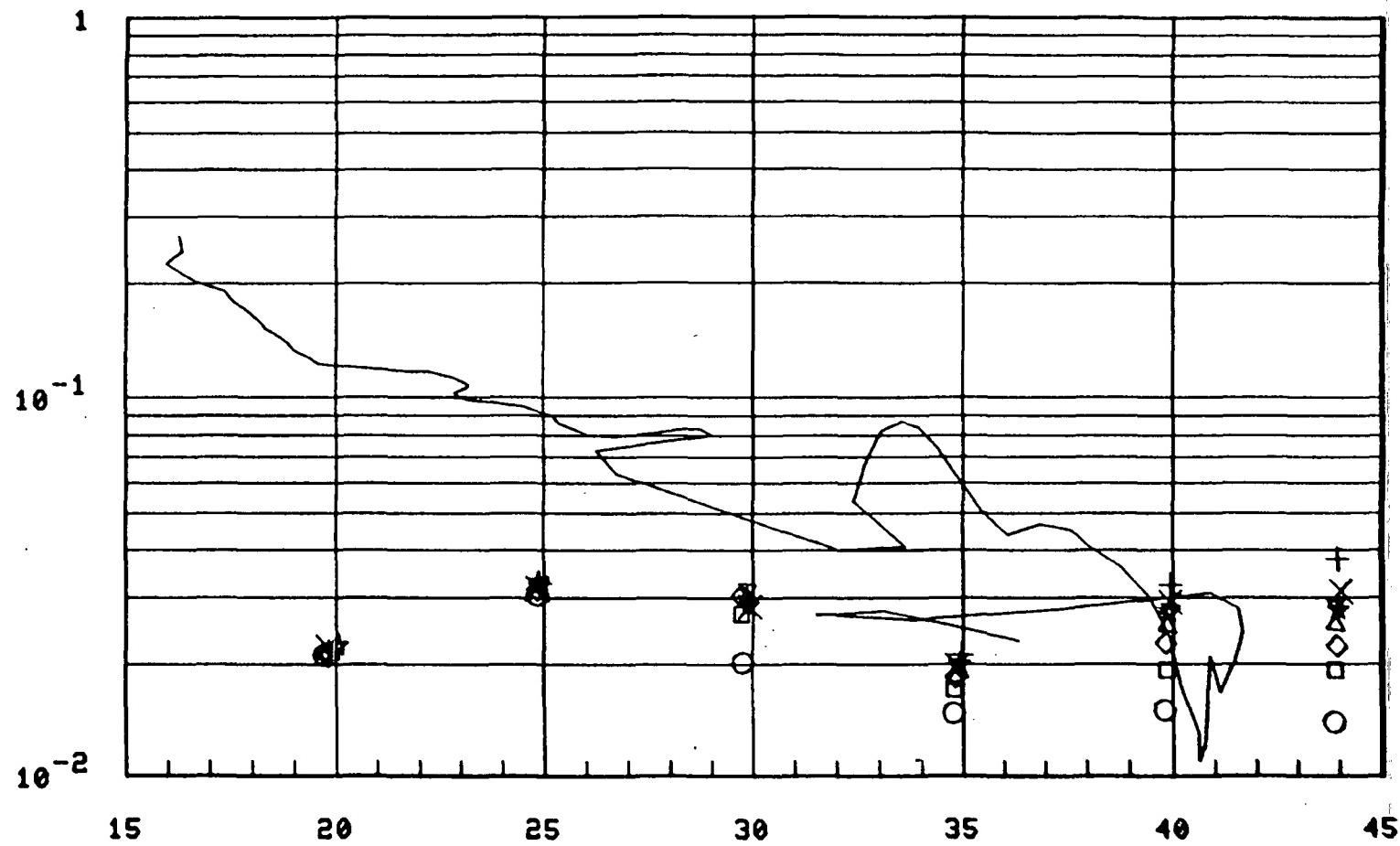
STS-4 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9897A/H-REF 965-1360 SEC

O D O A D A * + X
 X

B-104



ANGLE-OF-ATTACK - DEG

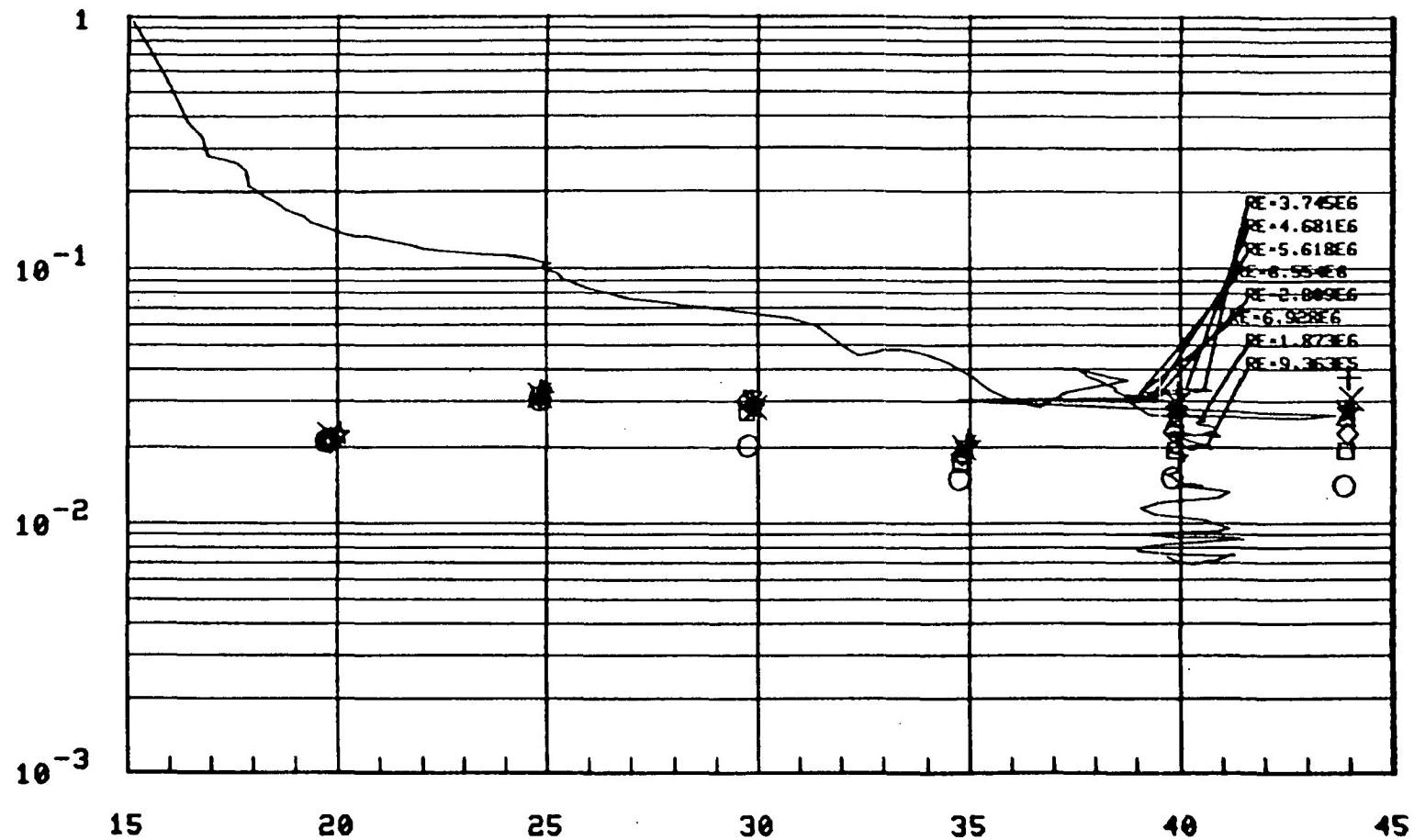
01/12/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9897A/H-REF 150-1430 SEC

O □ △ ▲ ▷ ★ + X



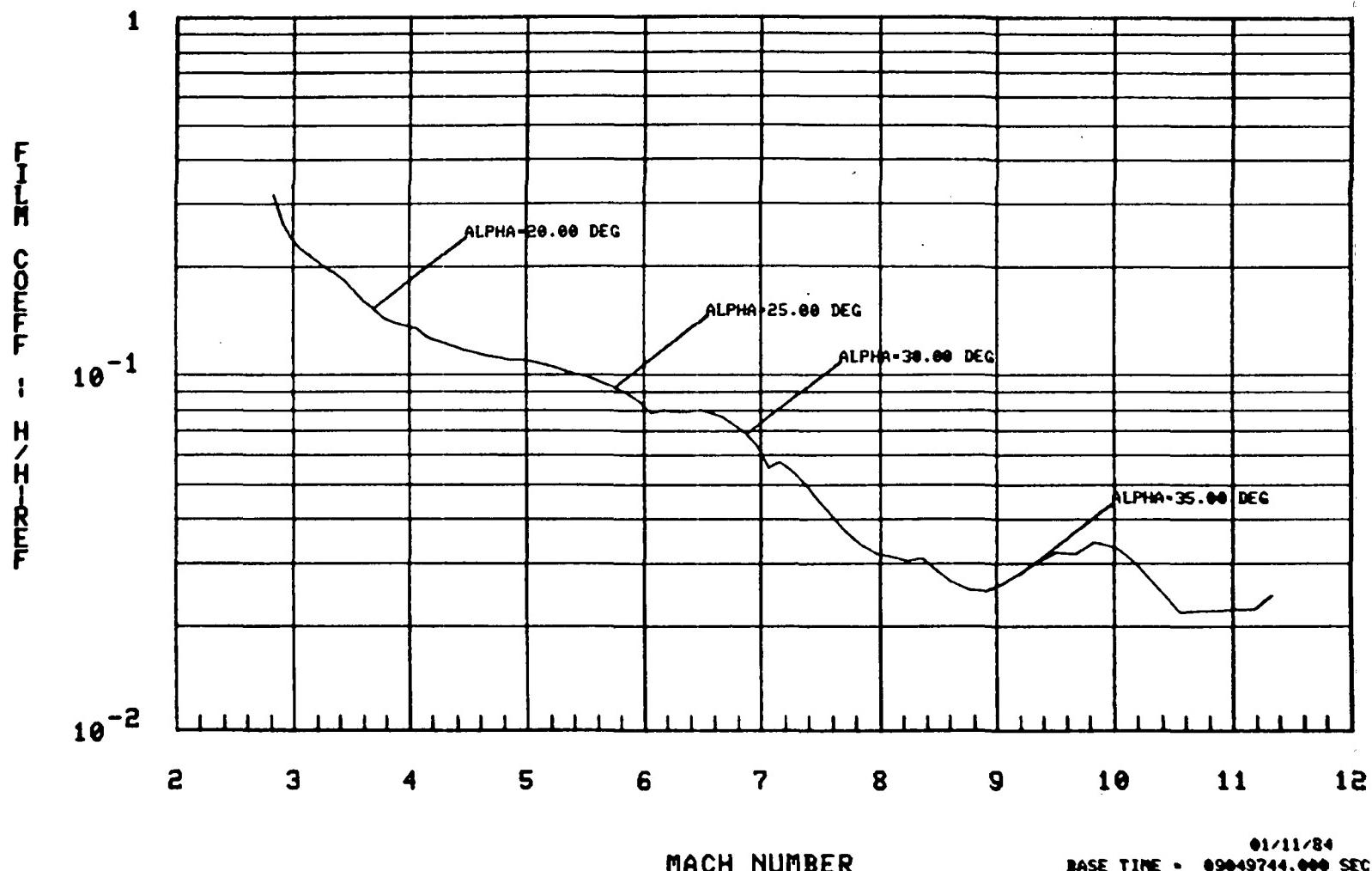
B-105

ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U07T9897A/H-REF 1065-1500 SEC

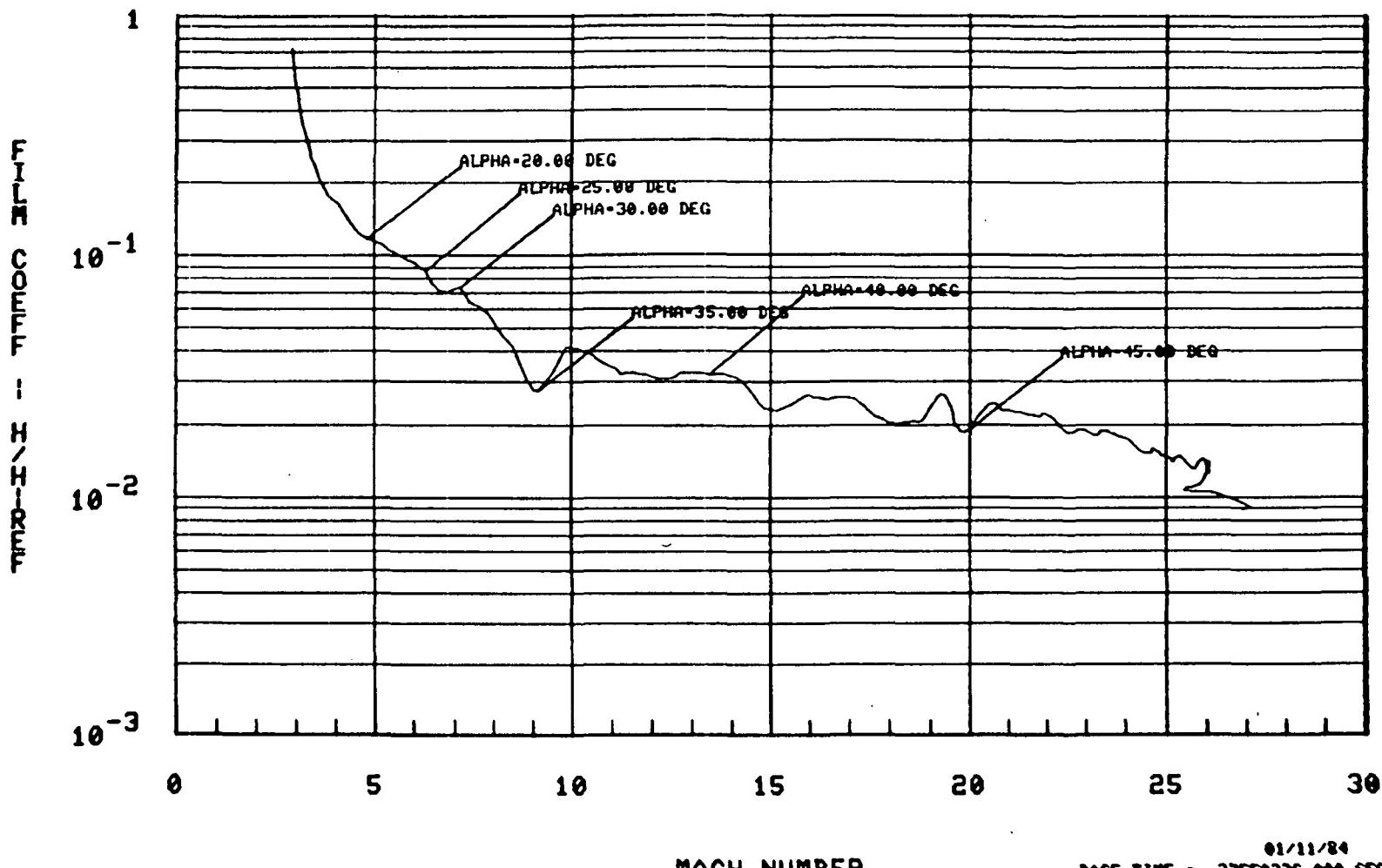


01/11/84
MACH NUMBER

BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U07T9897A/H-REF 200-1530 SEC

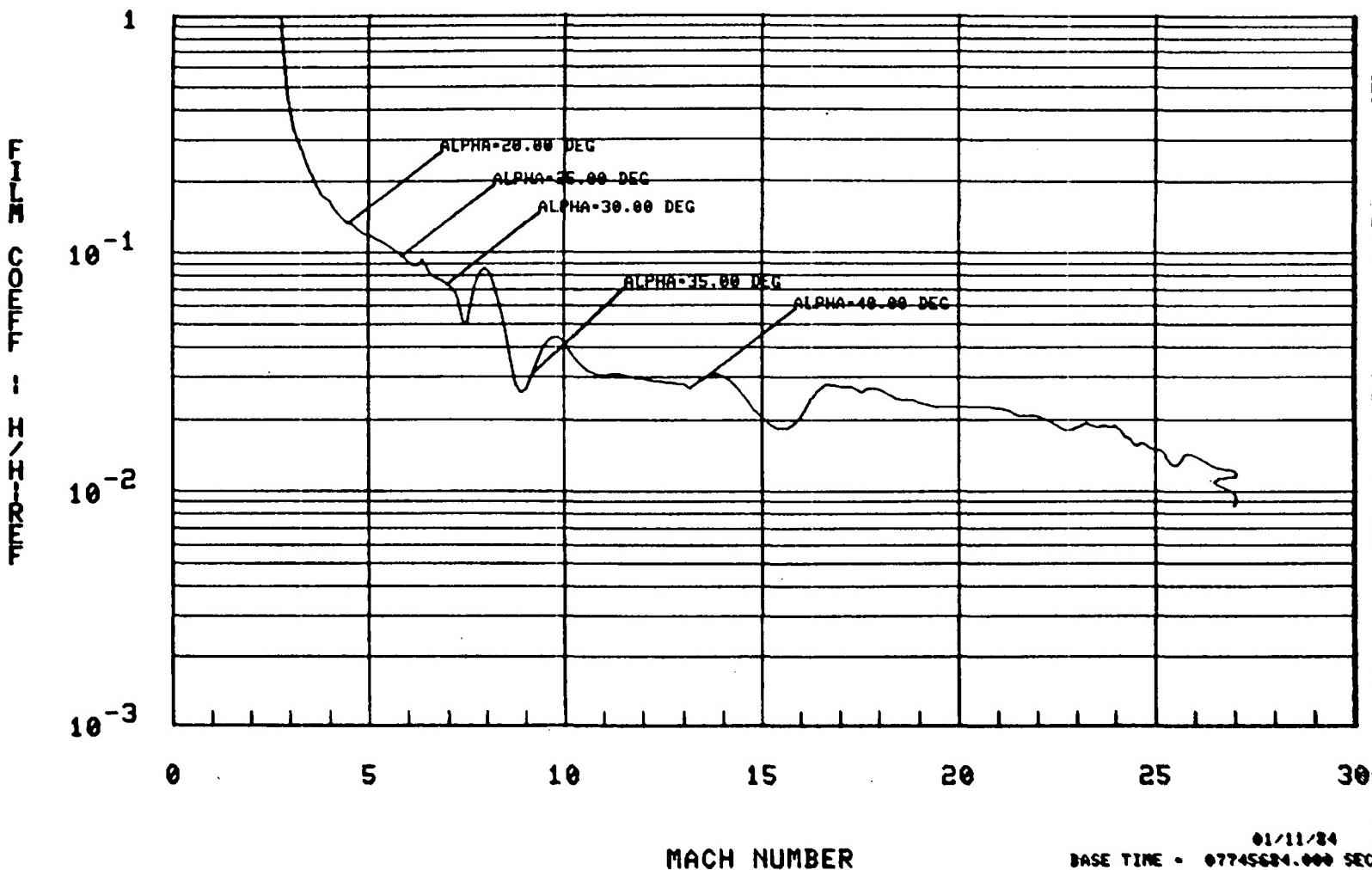


01/11/84

BASE TIME • 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U07T9897A/H-REF 200-1440 SEC



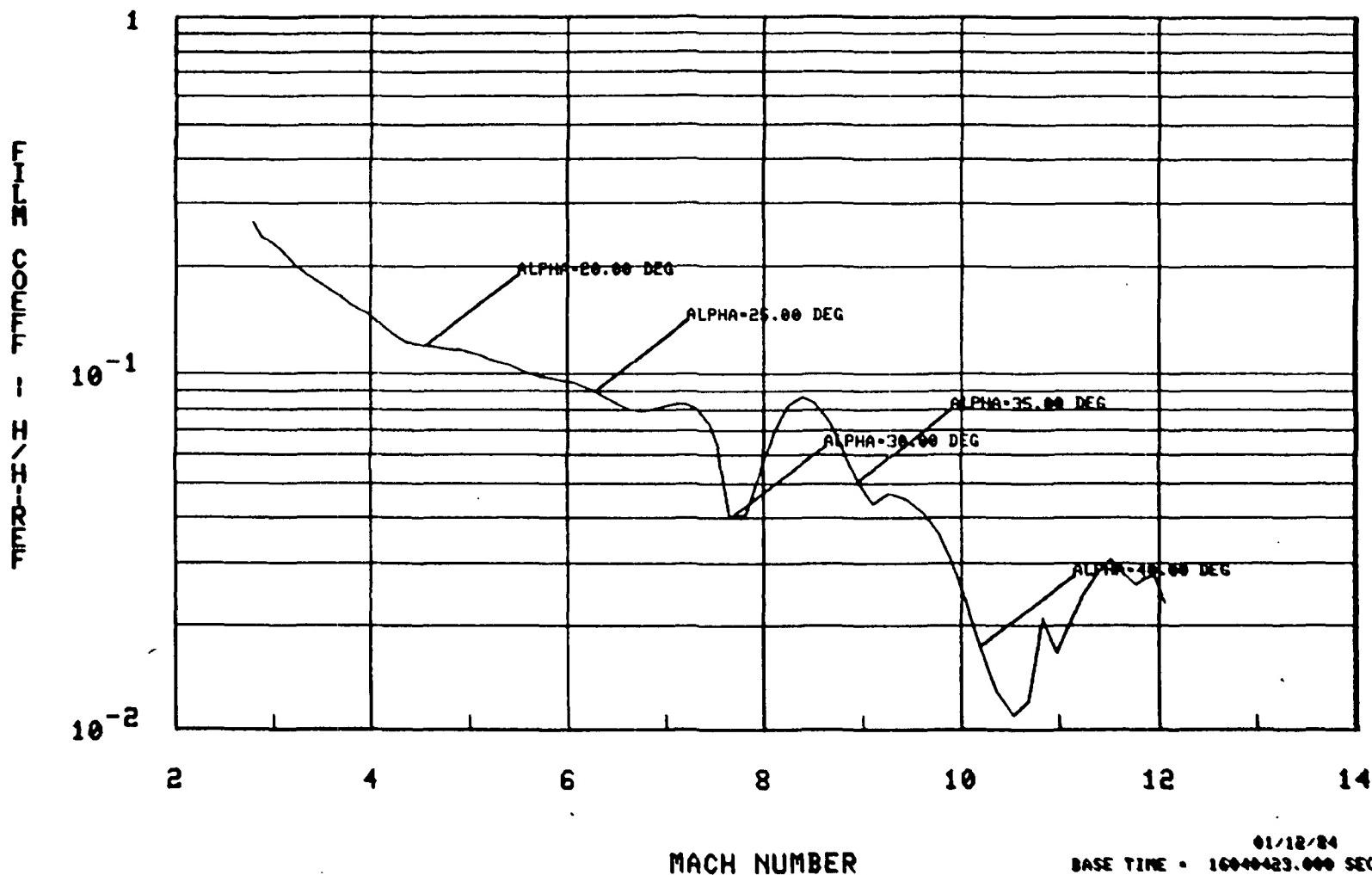
B-108

01/11/84
MACH NUMBER

BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

V07T9897A/H-REF 965-1360 SEC

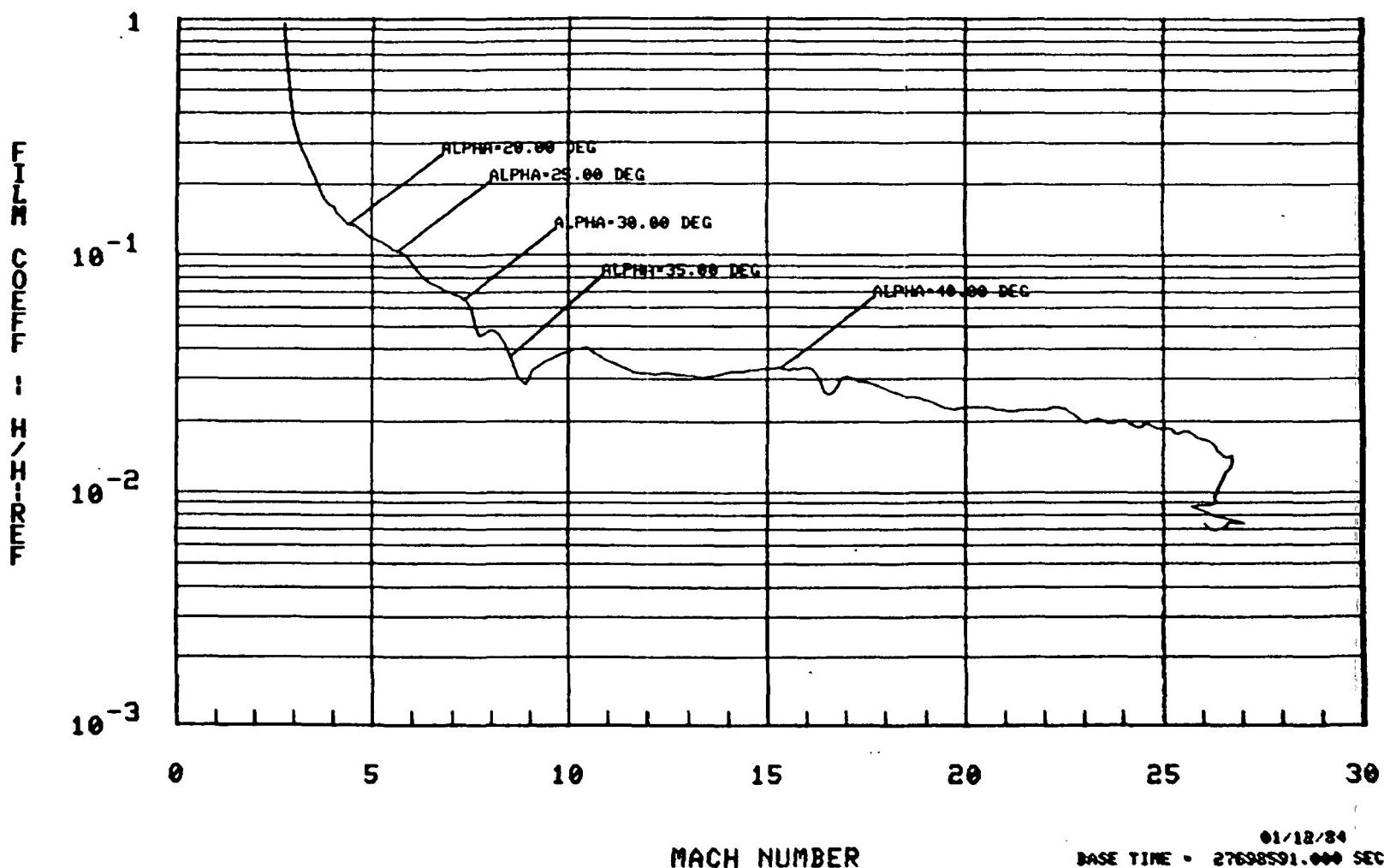


01/18/84

BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U07T9897A/H-REF 150-1430 SEC



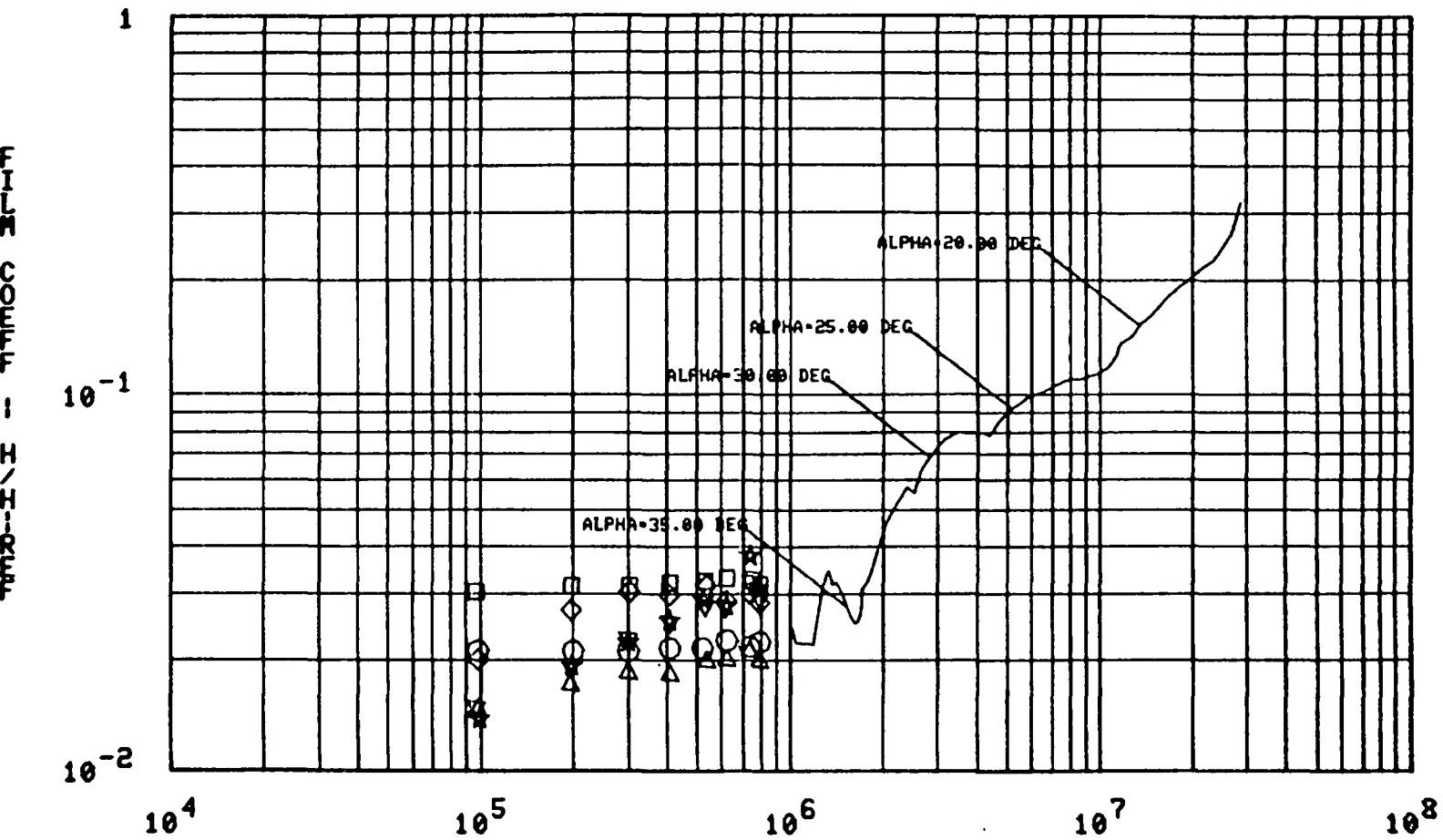
01/12/84

BASE TIME • 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9897A/H-REF 1065-1500 SEC



B-111

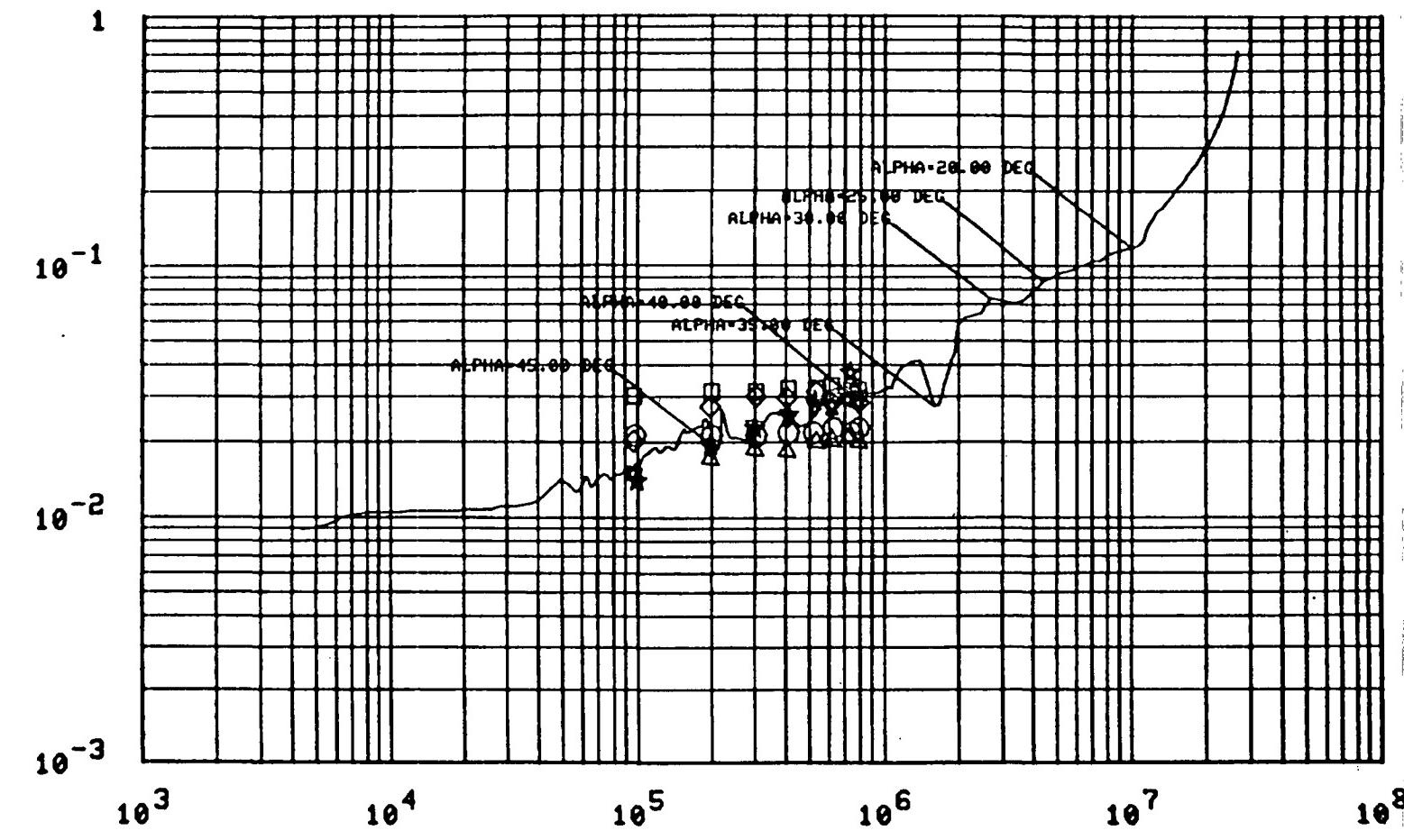
REYNOLDS NUMBER (NS)

01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U0779897A/H-REF 200-1530 SEC



B-112

REYNOLDS NUMBER (NS)

01/11/84
BASE TIME - 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

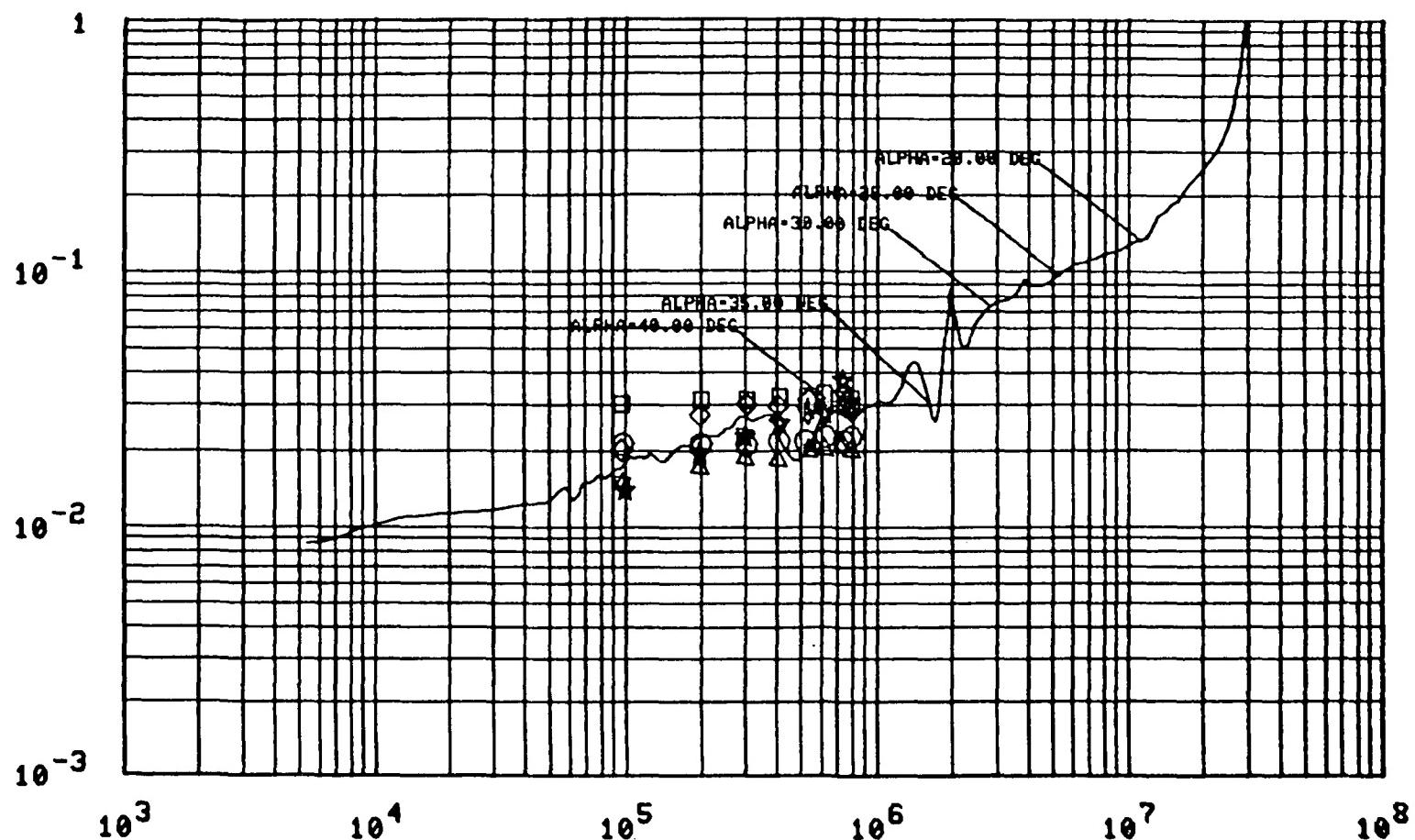
○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9897A/H-REF 200-1440 SEC

LINE CONDUIT - H-REF

B-113



REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

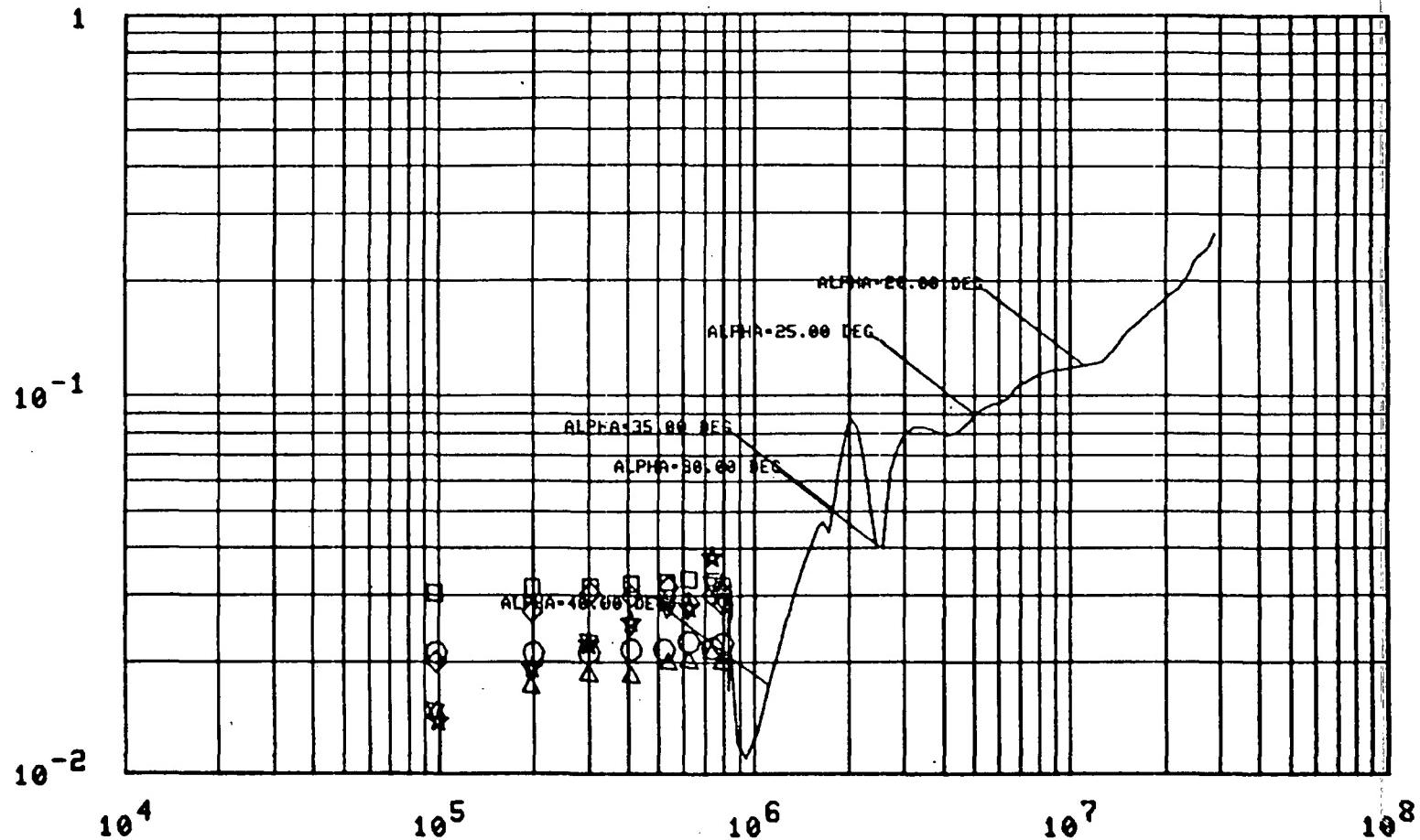
○ □ ◇ △ ▽ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9897A/H-REF 965-1360 SEC

FILE CODE - H/H-REF

B-114



REYNOLDS NUMBER (NS)

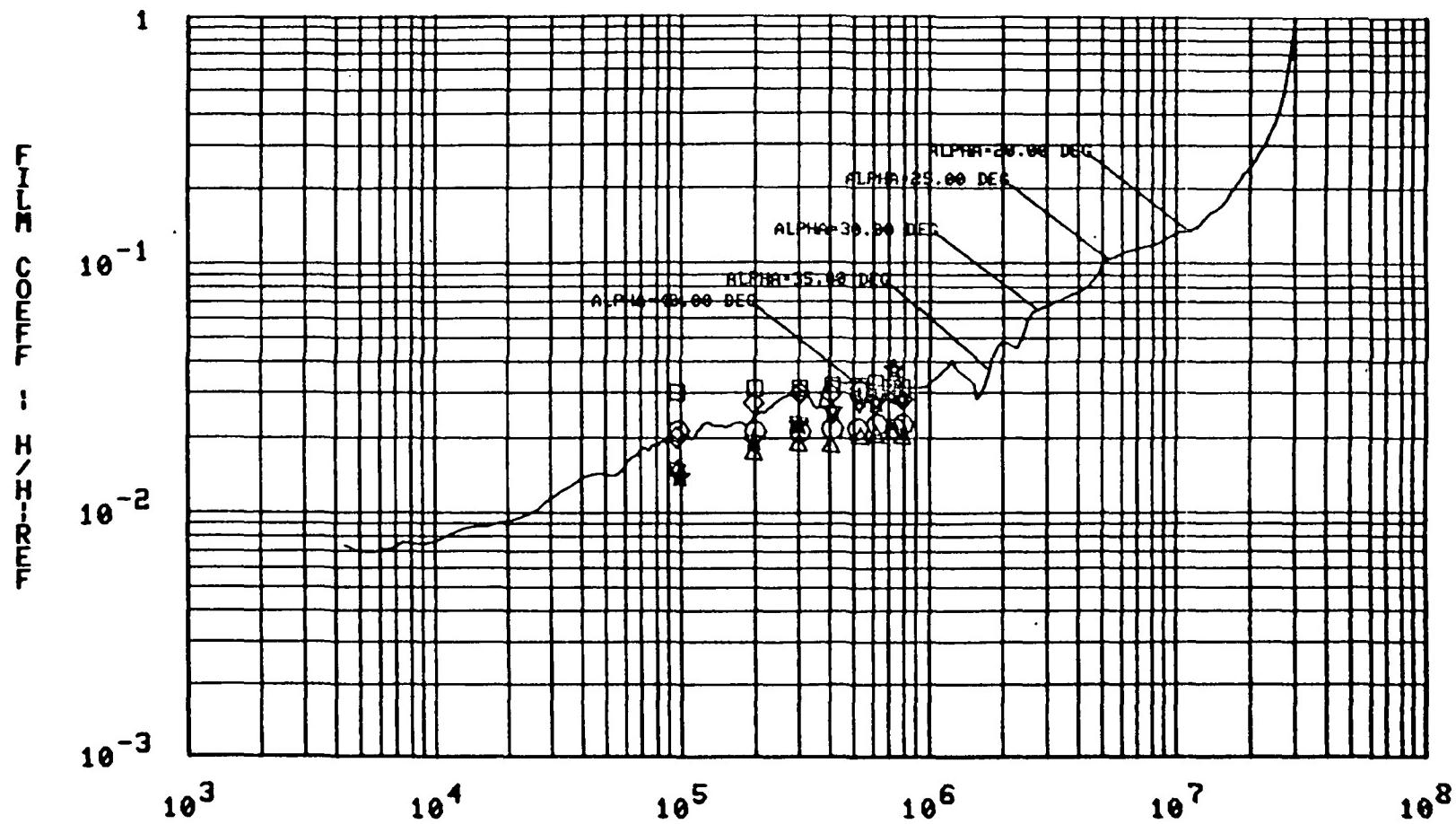
01/12/84
 BASE TIME = 16040483.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

○ □ ◇ △ ▽ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9897A/H-REF 150-1430 SEC



B-115

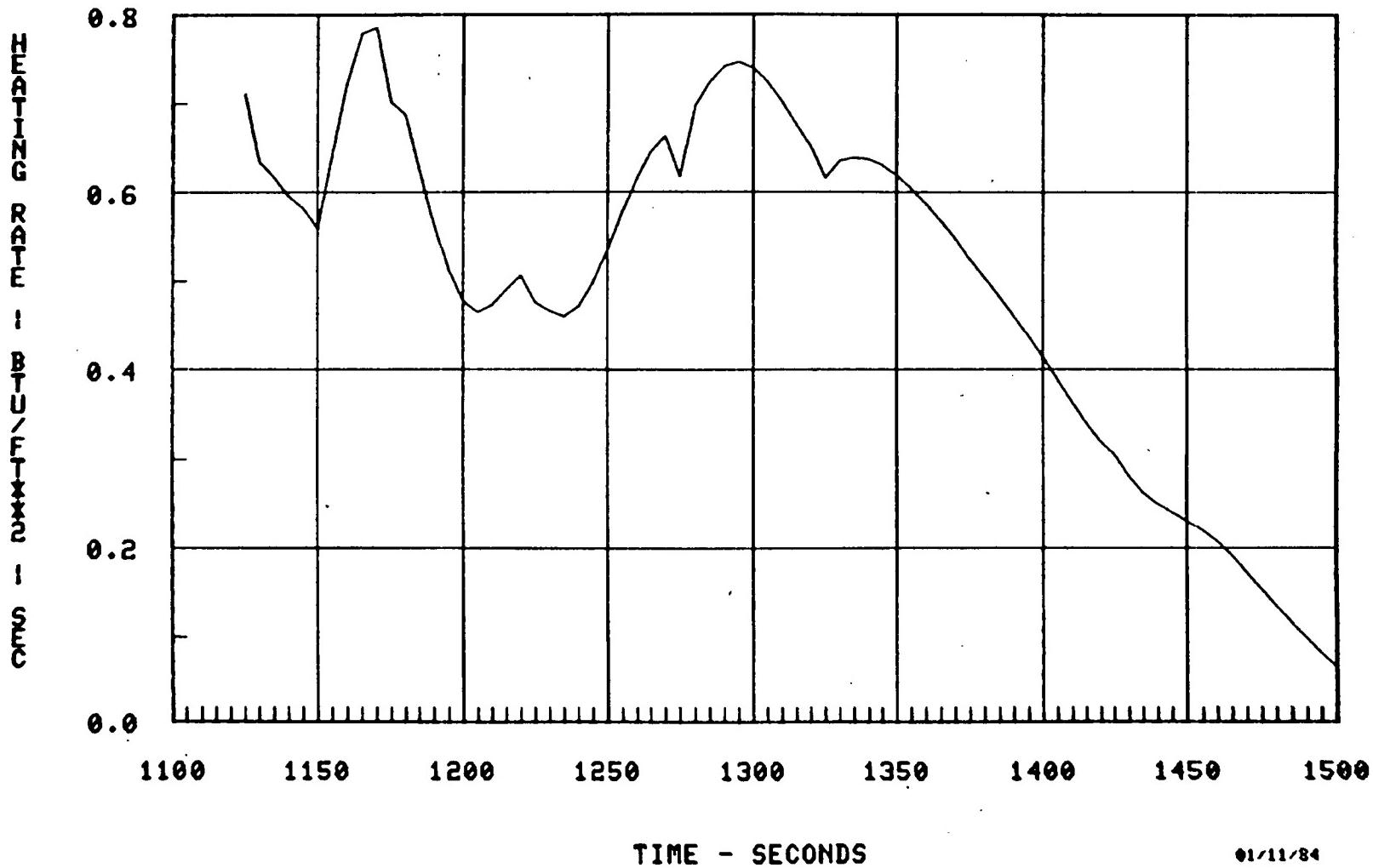
REYNOLDS NUMBER (NS)

01/12/84

BASE TIME • 27698591.000 SEC.

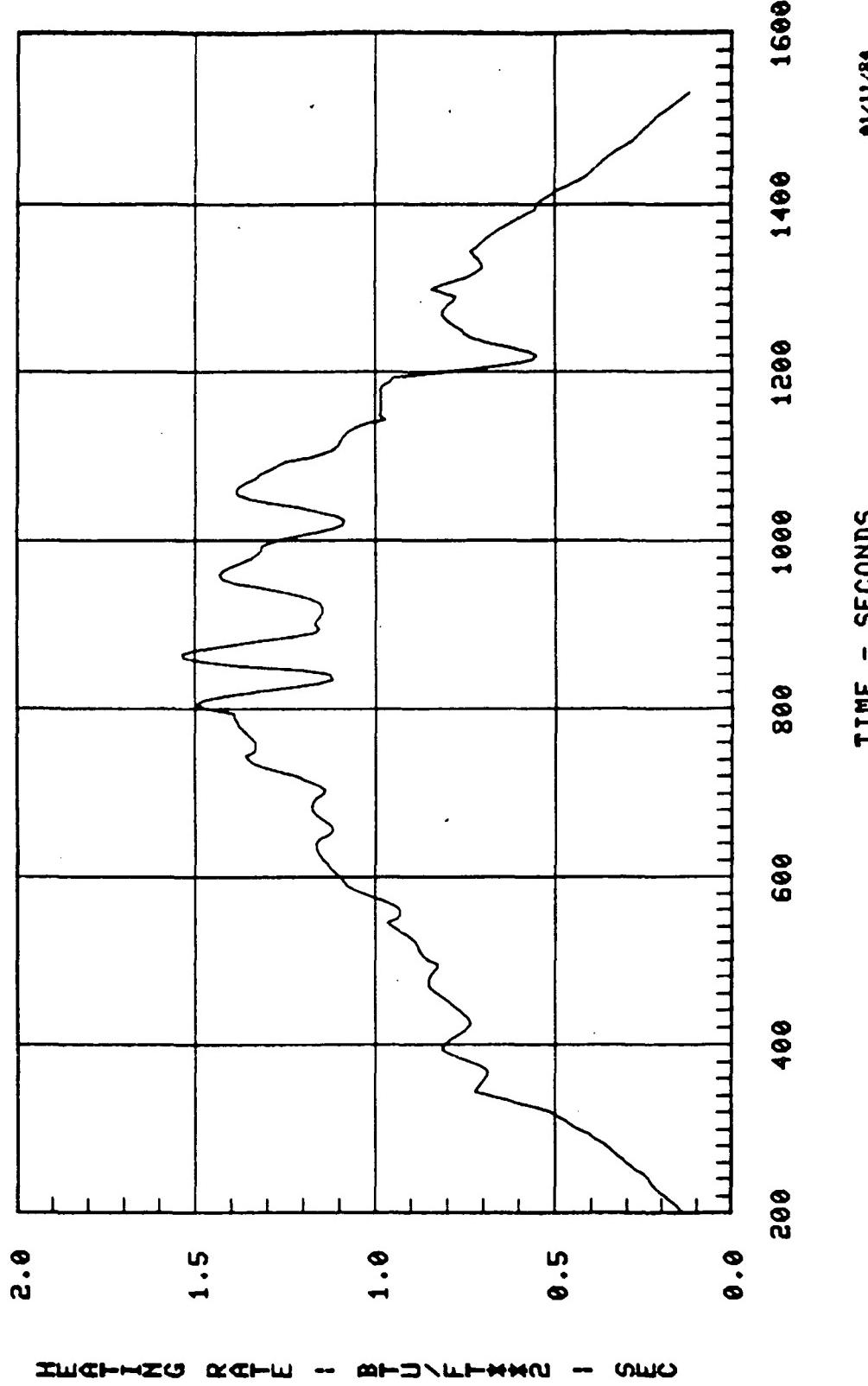
STS-1 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U07T9897A



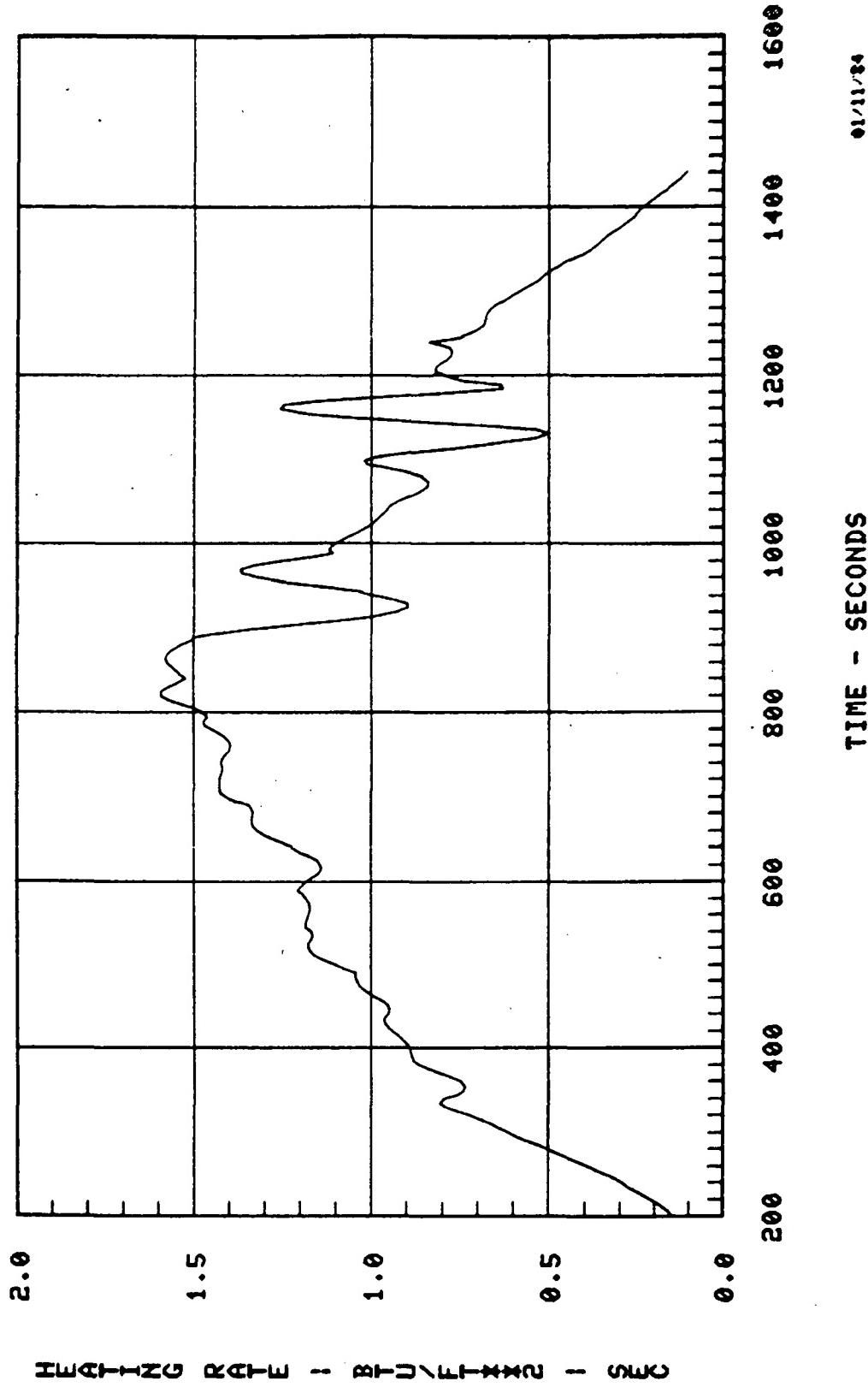
STS-2 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U0779897A



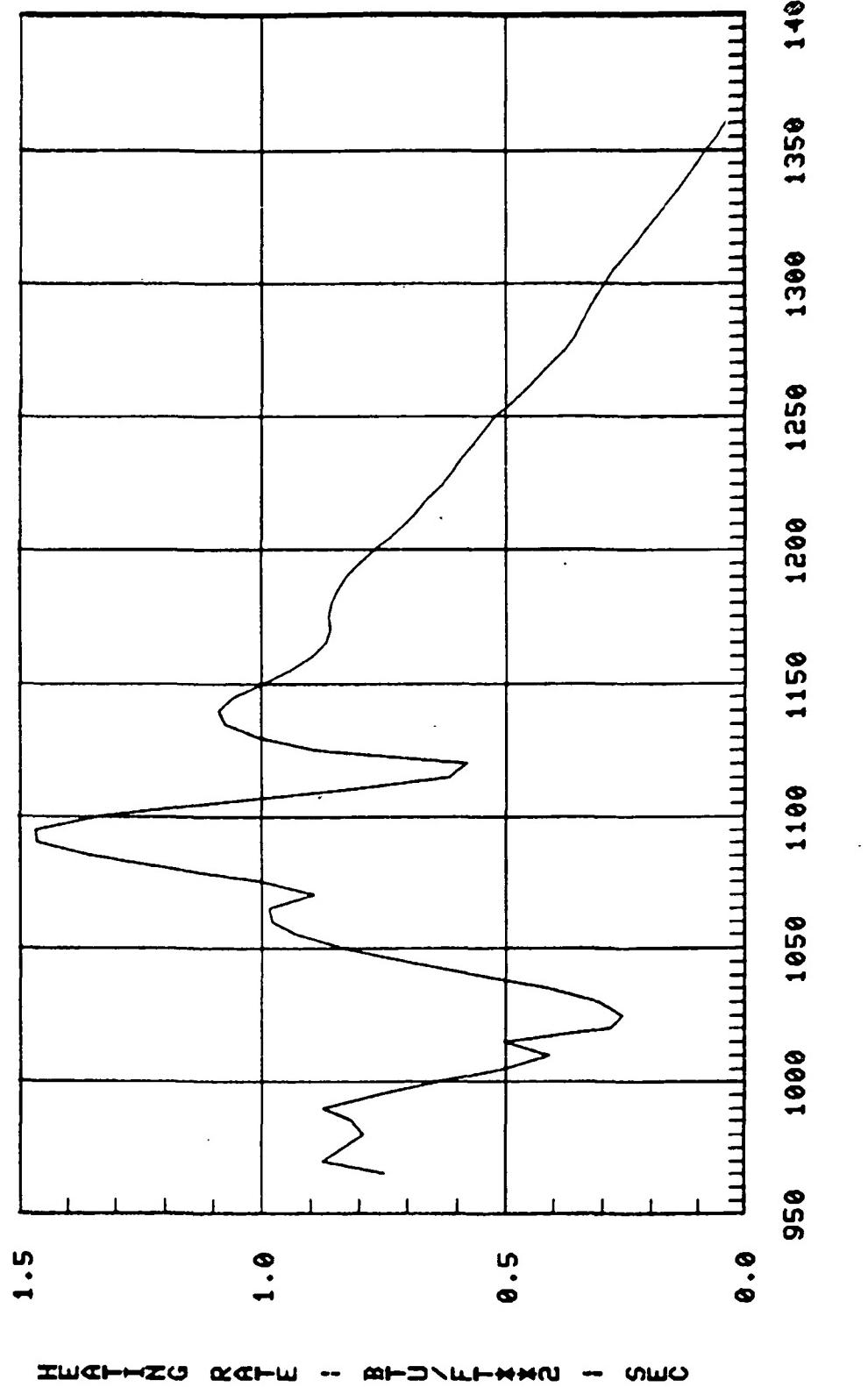
STS-3 (107 FT LENGTH SIDE FUS X/L=θ.4θ) Z=400

U0779897A



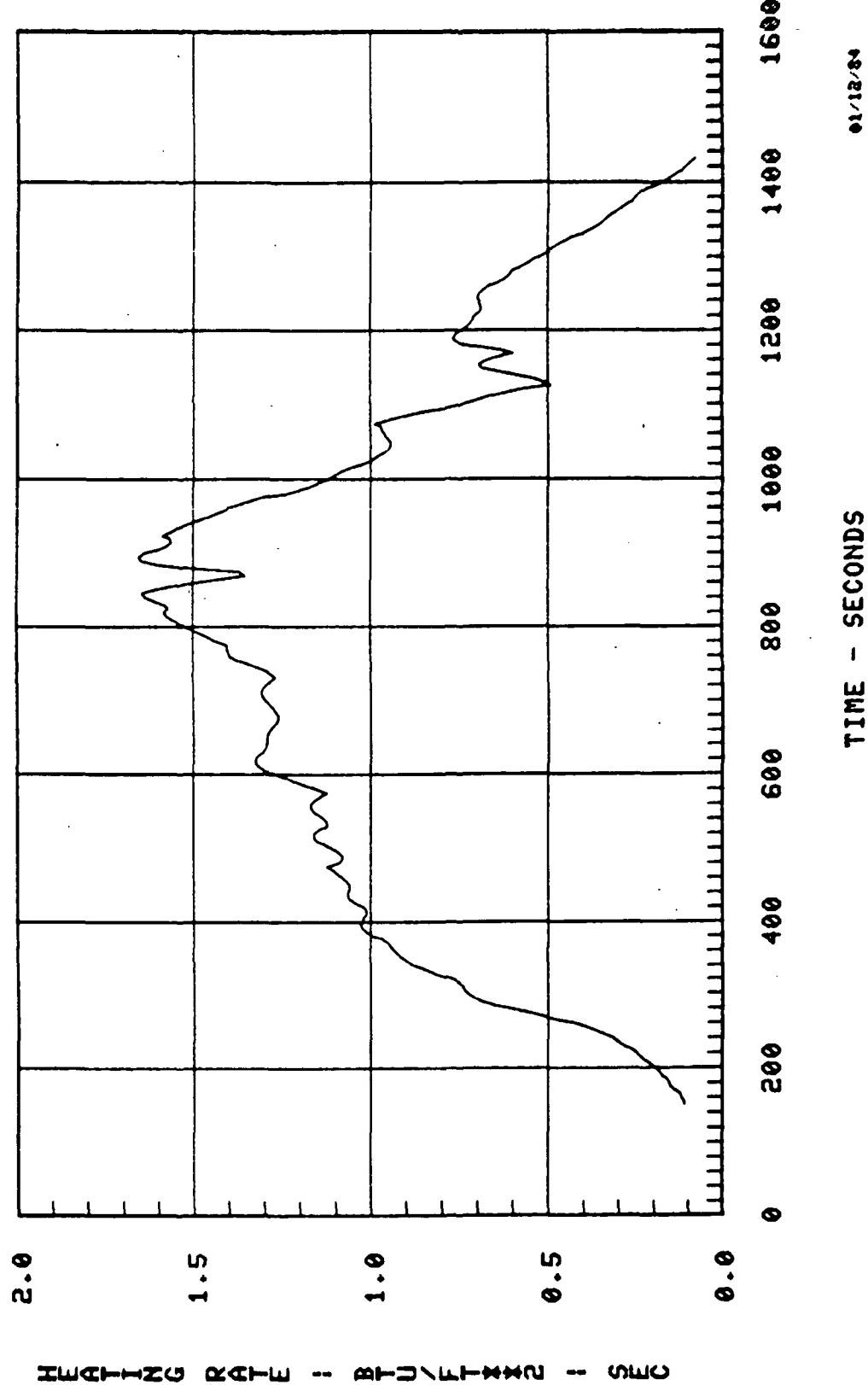
STS-4 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U6779897A



STS-5 (107 FT LENGTH SIDE FUS X/L=θ.4θ) Z=400

U07T9897A

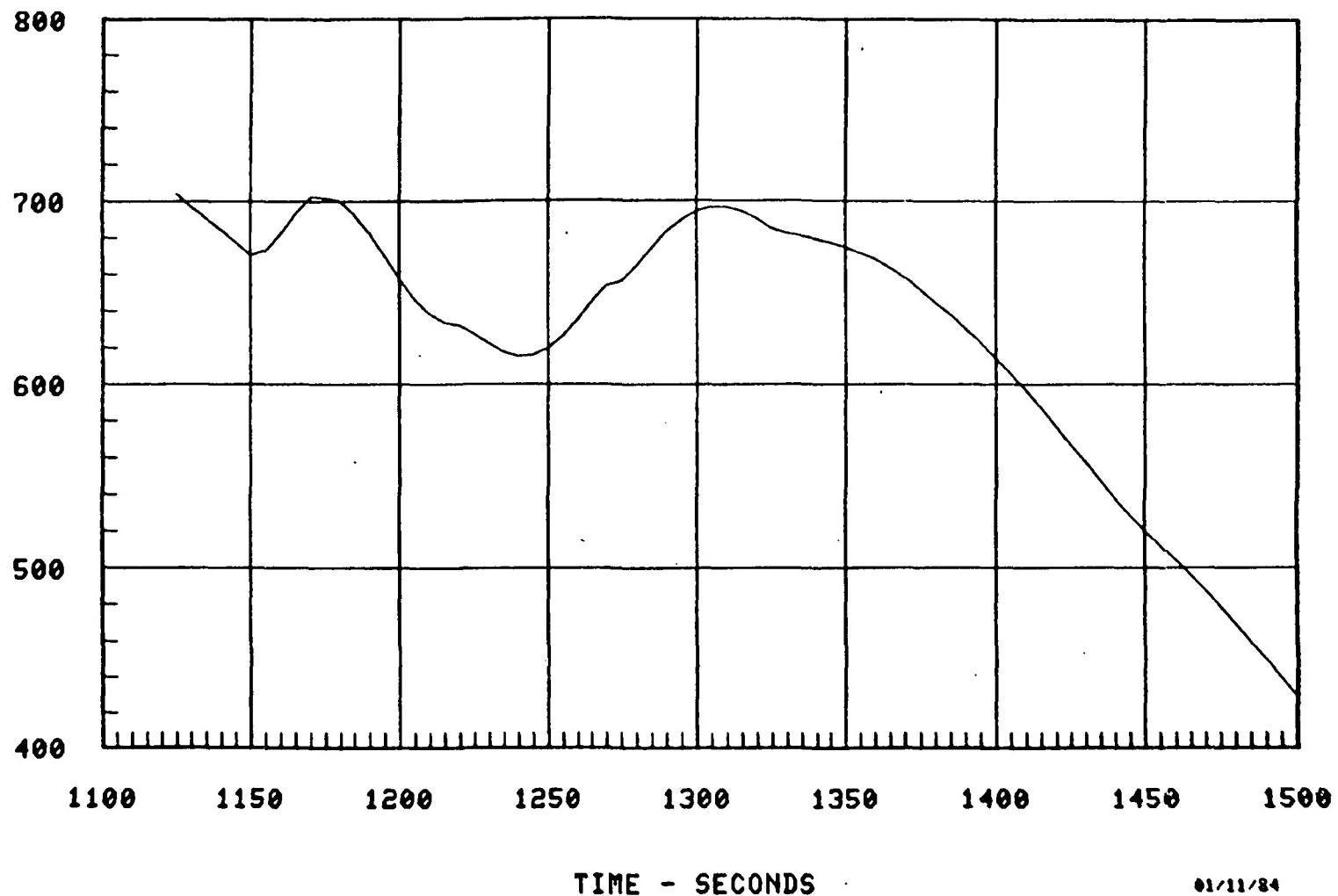


01/12/84

STS-1 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U07T9897A

B-121

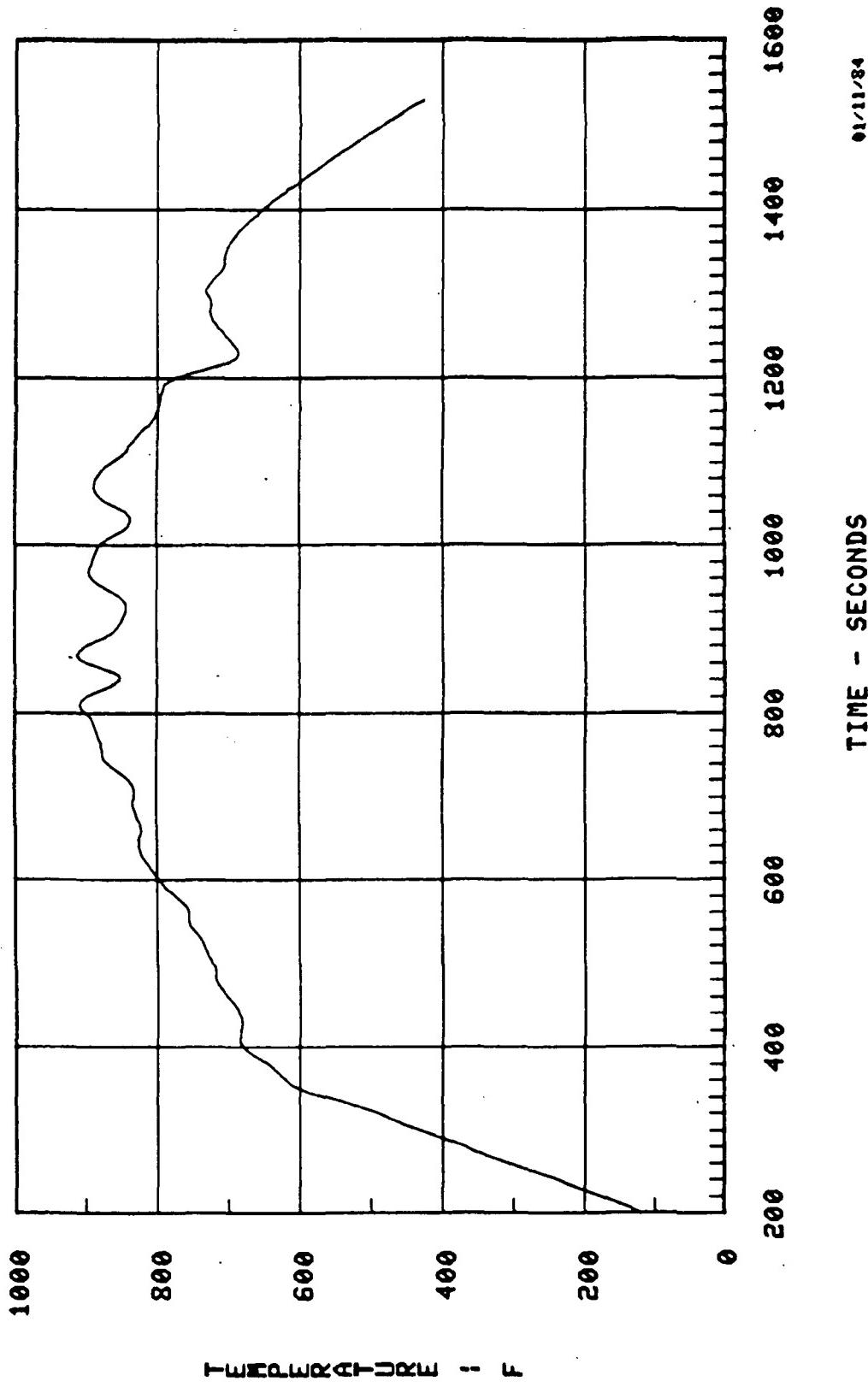


TIME - SECONDS

01/11/84

STS-2 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

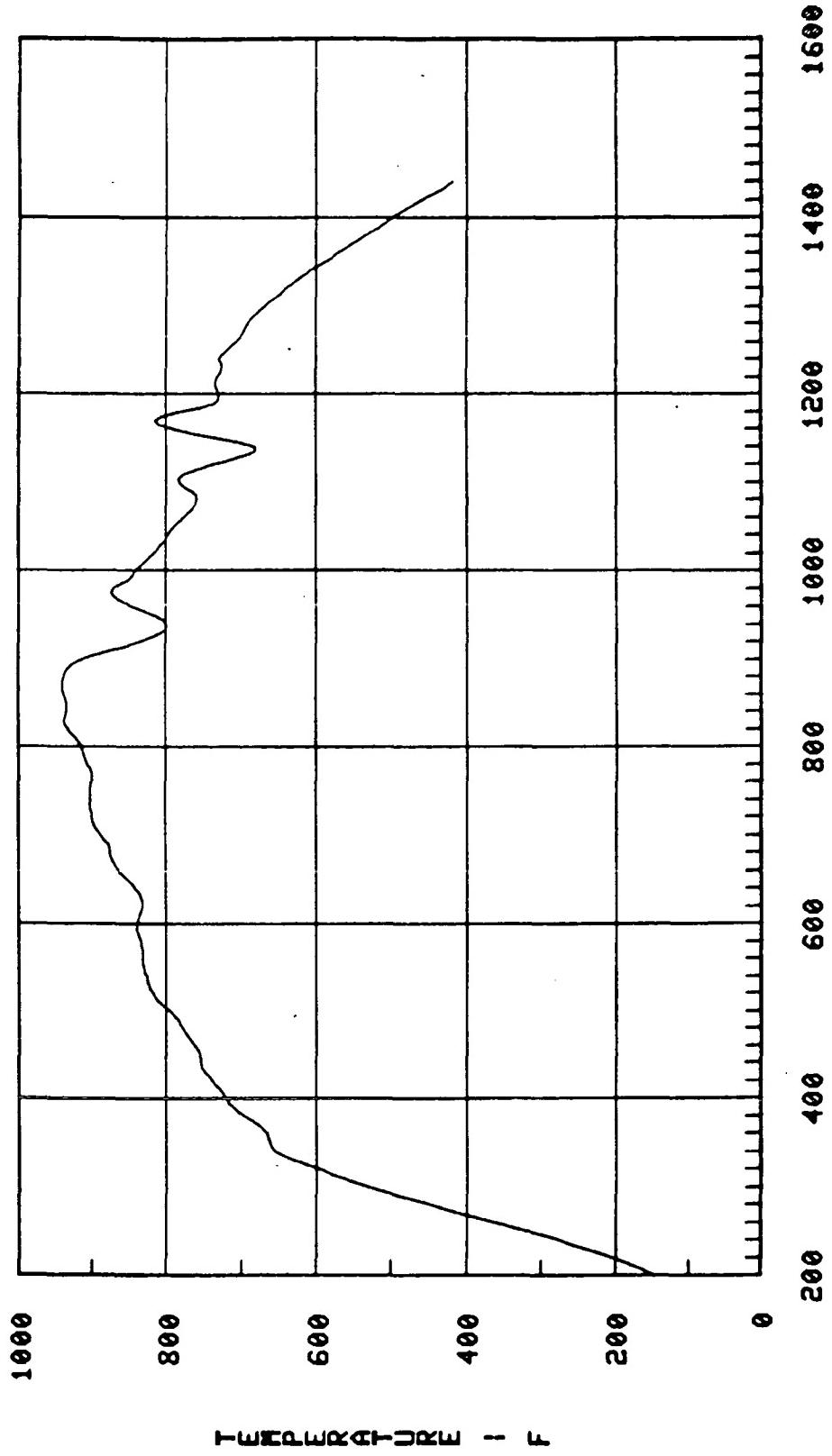
00719857A



B-122

STS-3 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

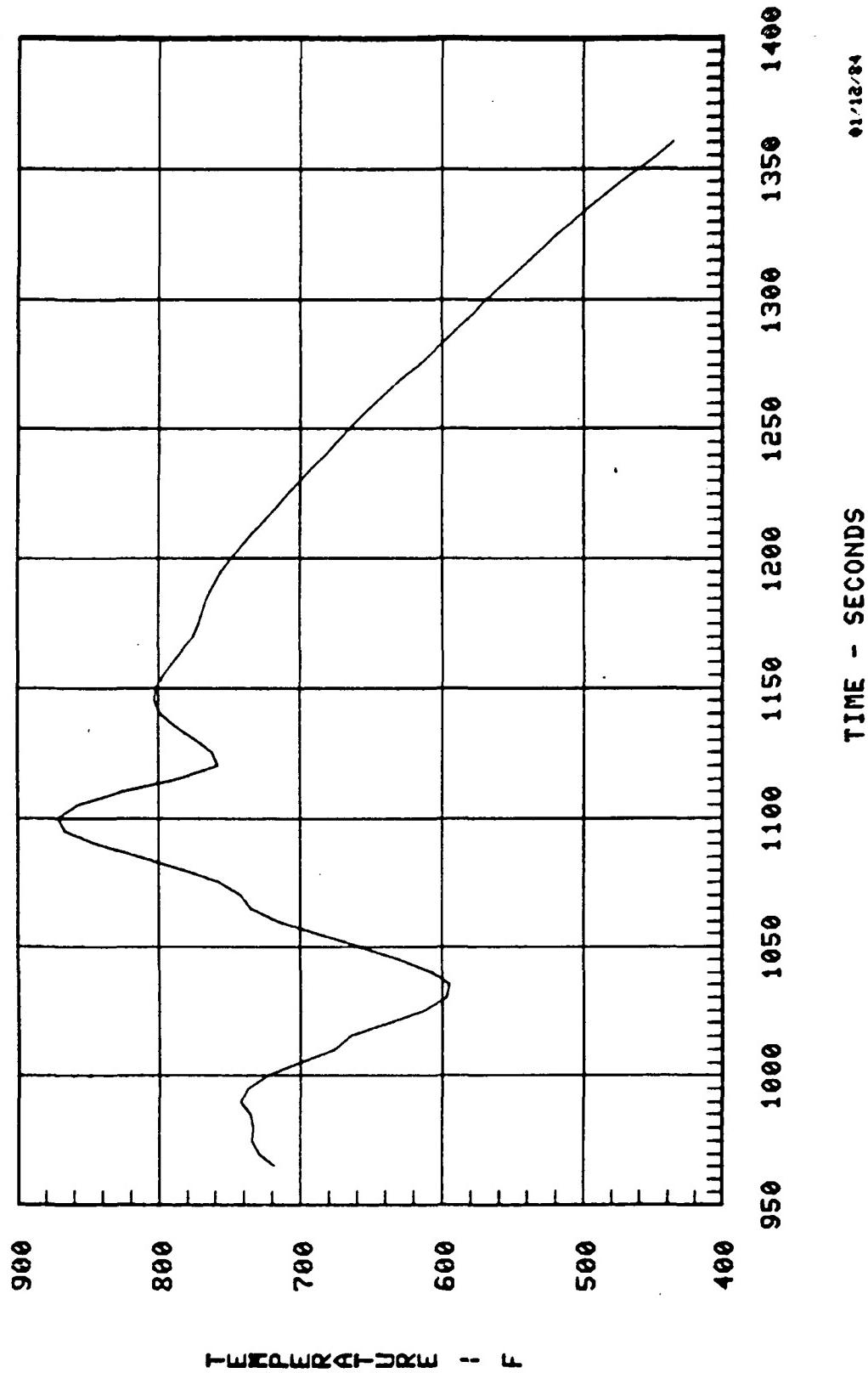
U0779897A



B-123

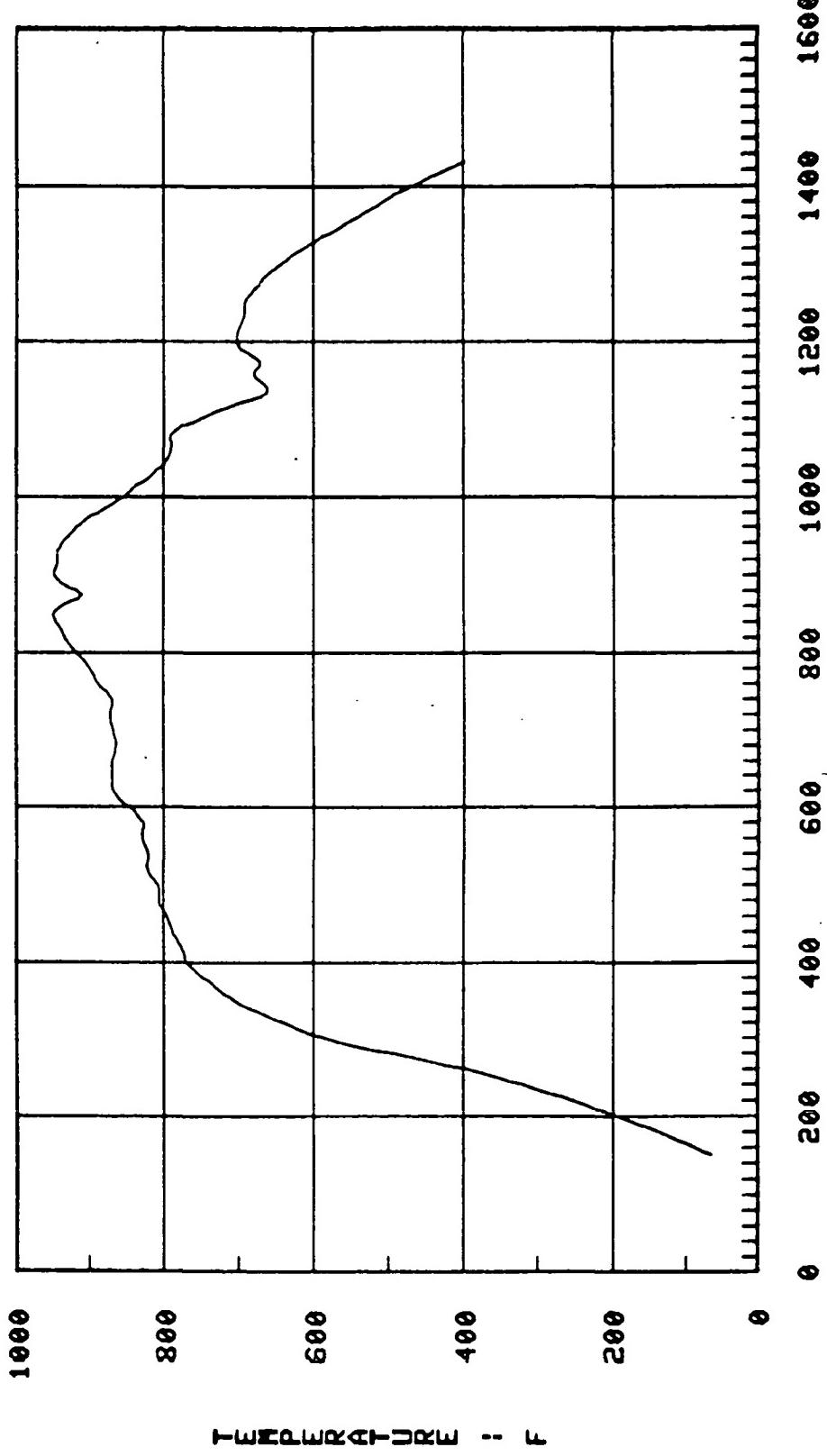
STS-4 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U07798974



STS-5 (107 FT LENGTH SIDE FUS X/L=0.40) Z=400

U07T9897A

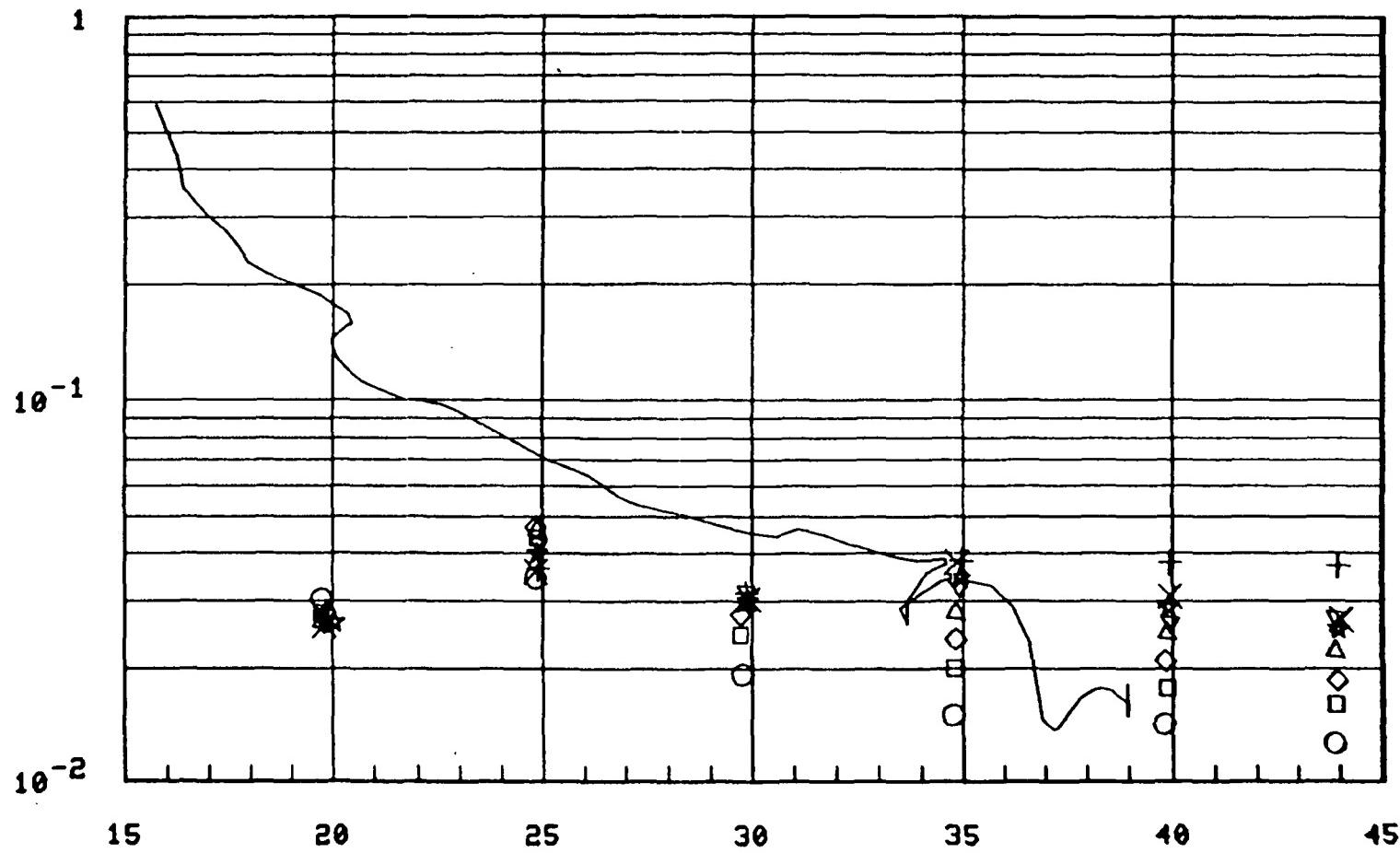


STS-1 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9855A/H-REF 1065-1500 SEC

O □ ◇ △ ▲ + X
 O □ ◇ △ ▲ + X



B-126

ANGLE-OF-ATTACK - DEG

01/11/84
BASE TIME = 09049744.000 SEC.

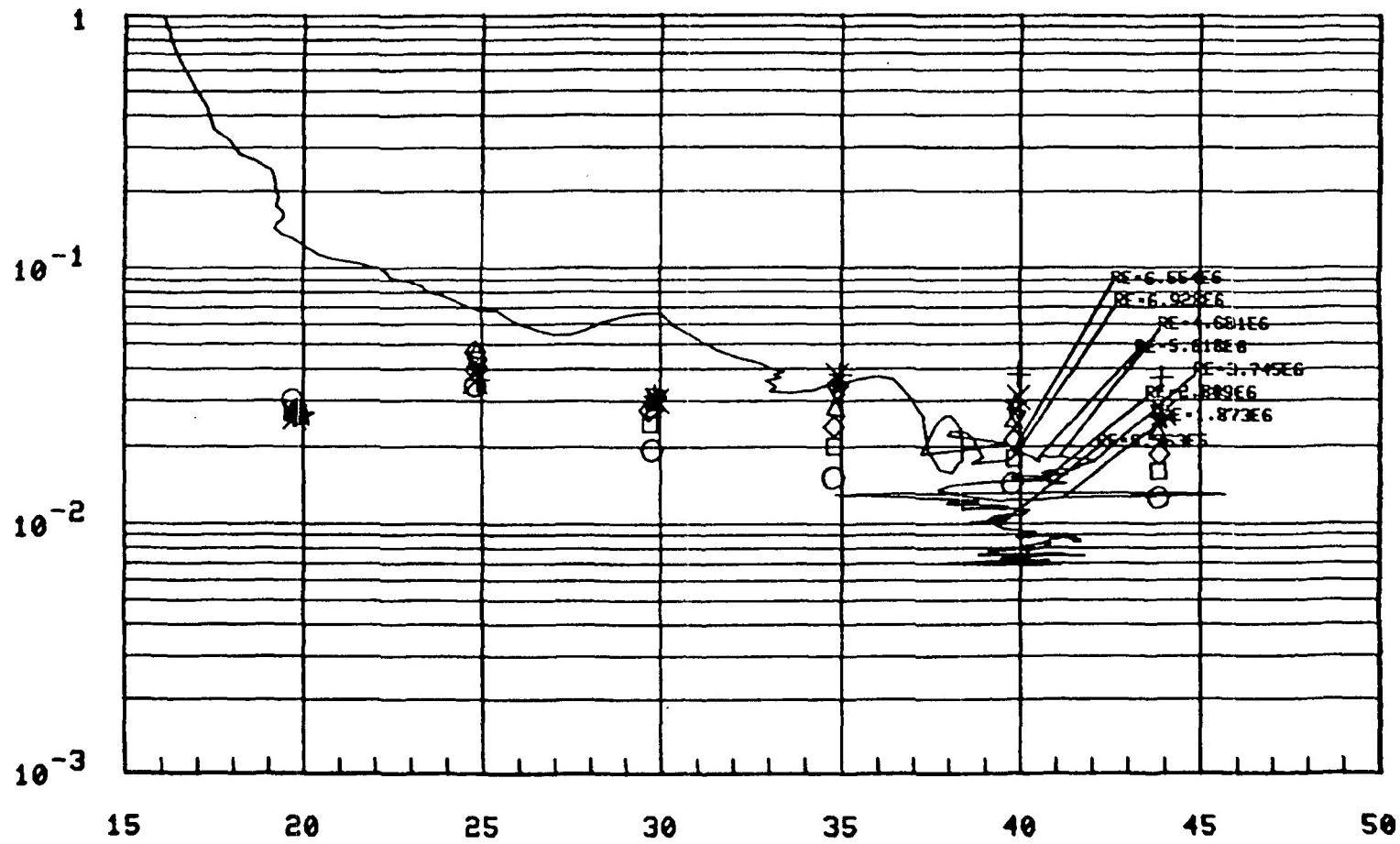
STS-2 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

○ □ △ ▽ ★ + X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9855A/H-REF 200-1530 SEC

B-127 LINE COUNT - H\Z-AWML



ANGLE-OF-ATTACK - DEG

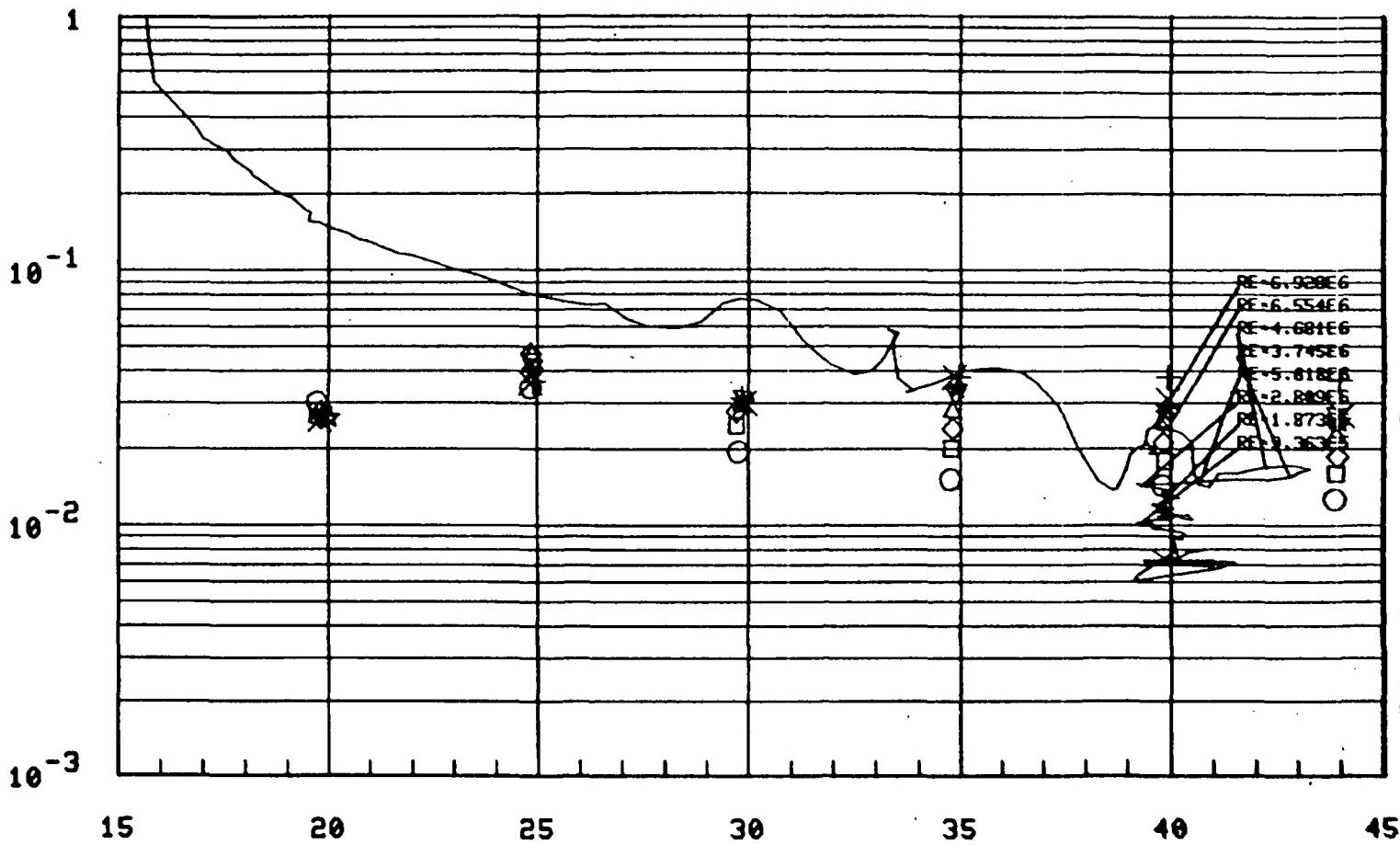
01/11/84
 BASE TIME = 27550836.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9855A/H-REF 200-1440 SEC

O □ ◇ ▲ △ ★ + X
 LINE SOURCE - H-H-REF



B-128

ANGLE-OF-ATTACK - DEG

01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

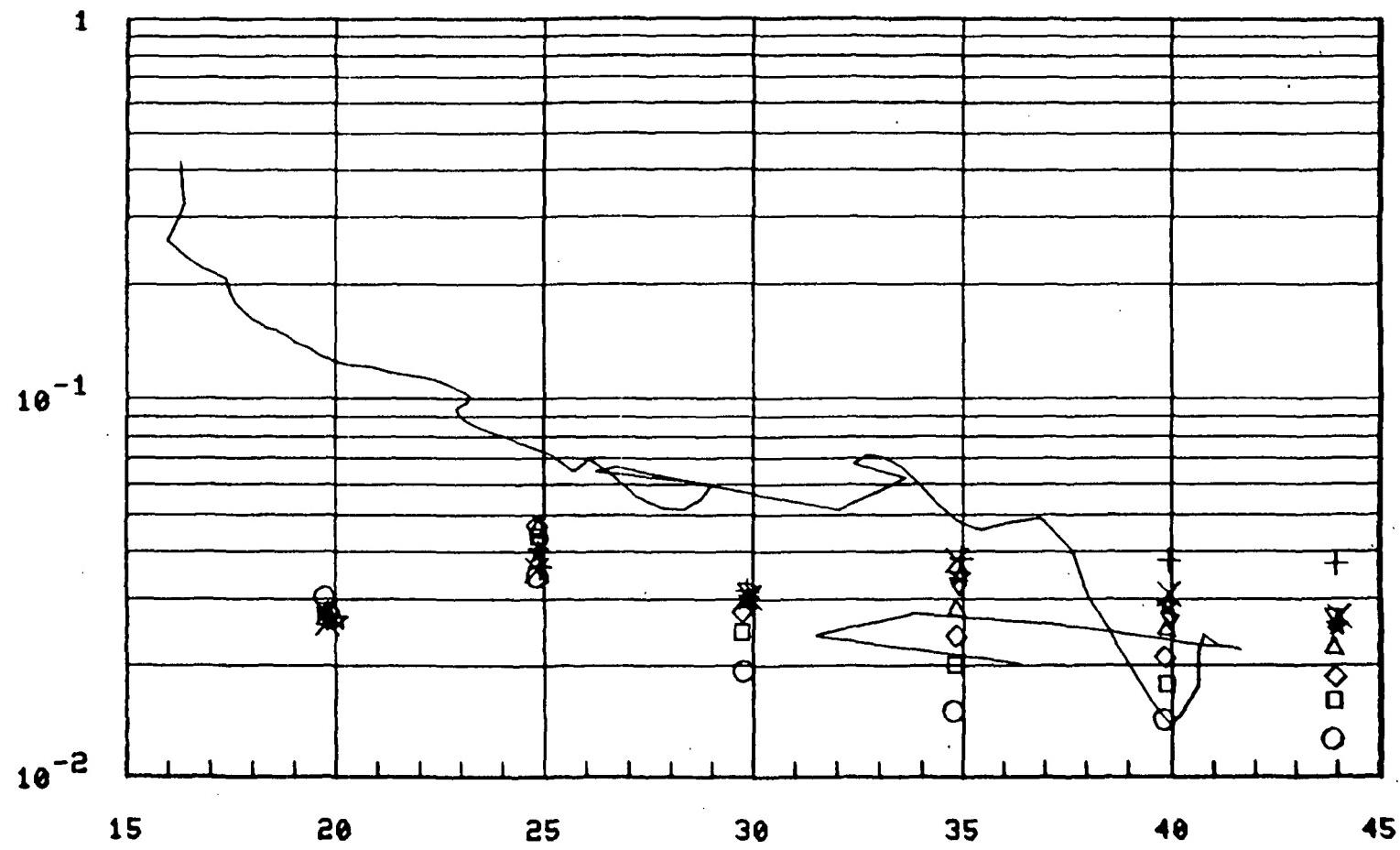
○□◇△★+×

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9855A/H-REF 965-1360 SEC

ANGLE OF ATTITUDE - DEG

B-1129



ANGLE-OF-ATTACK - DEG

01/12/84
 BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

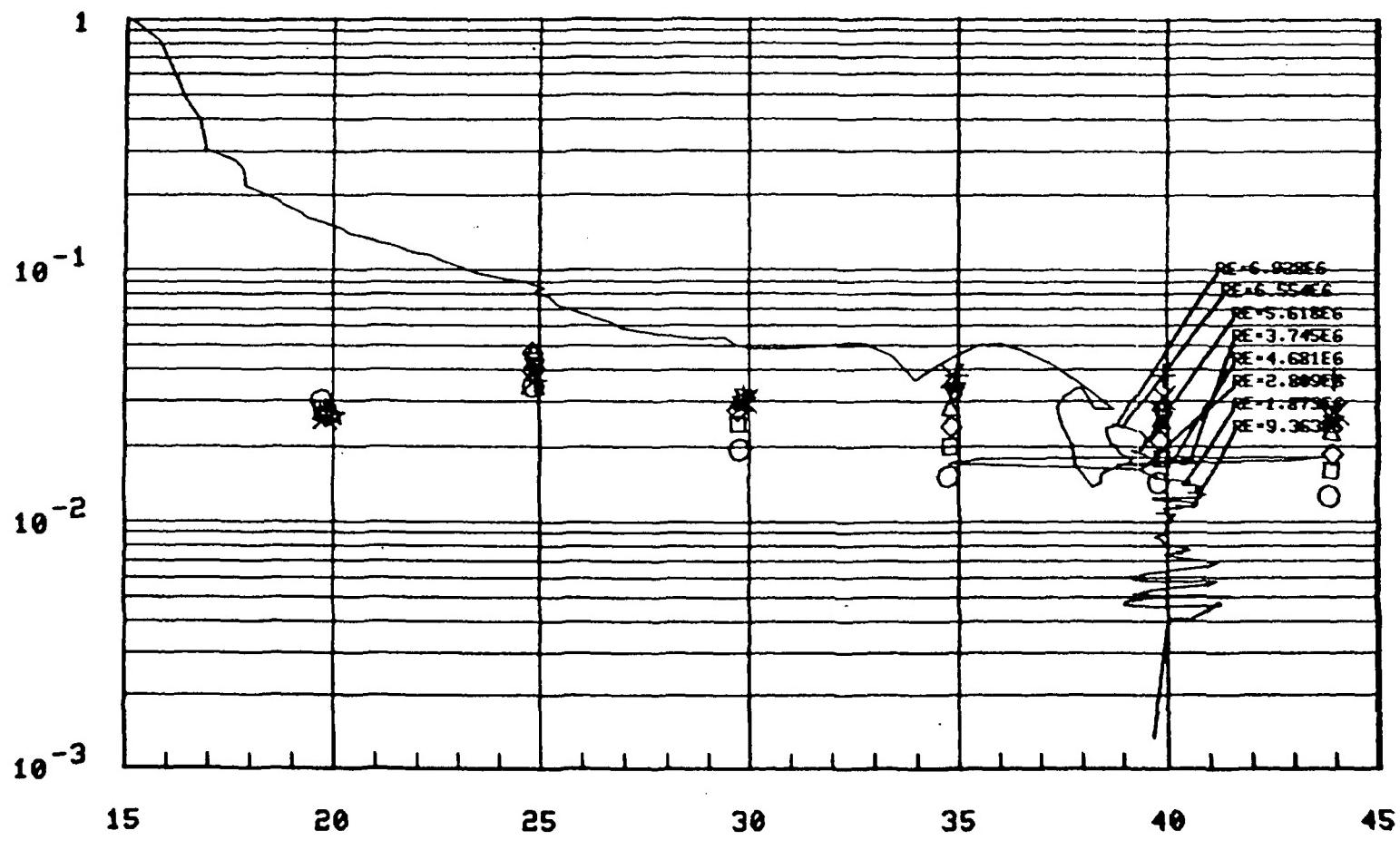
OH74 0.0175 SCALE RE - 0.5 E06
 OH74 0.0175 SCALE RE - 1.0 E06
 OH74 0.0175 SCALE RE - 1.5 E06
 OH74 0.0175 SCALE RE - 2.0 E06
 OH74 0.0175 SCALE RE - 2.5 E06
 OH74 0.0175 SCALE RE - 3.0 E06
 OH74 0.0175 SCALE RE - 3.5 E06
 OH74 0.0175 SCALE RE - 3.7 E06

U07T9855A/H-REF 150-1430 SEC

O ◊ △ ★ + X

LINE CONDUCT - H-REF

B-130

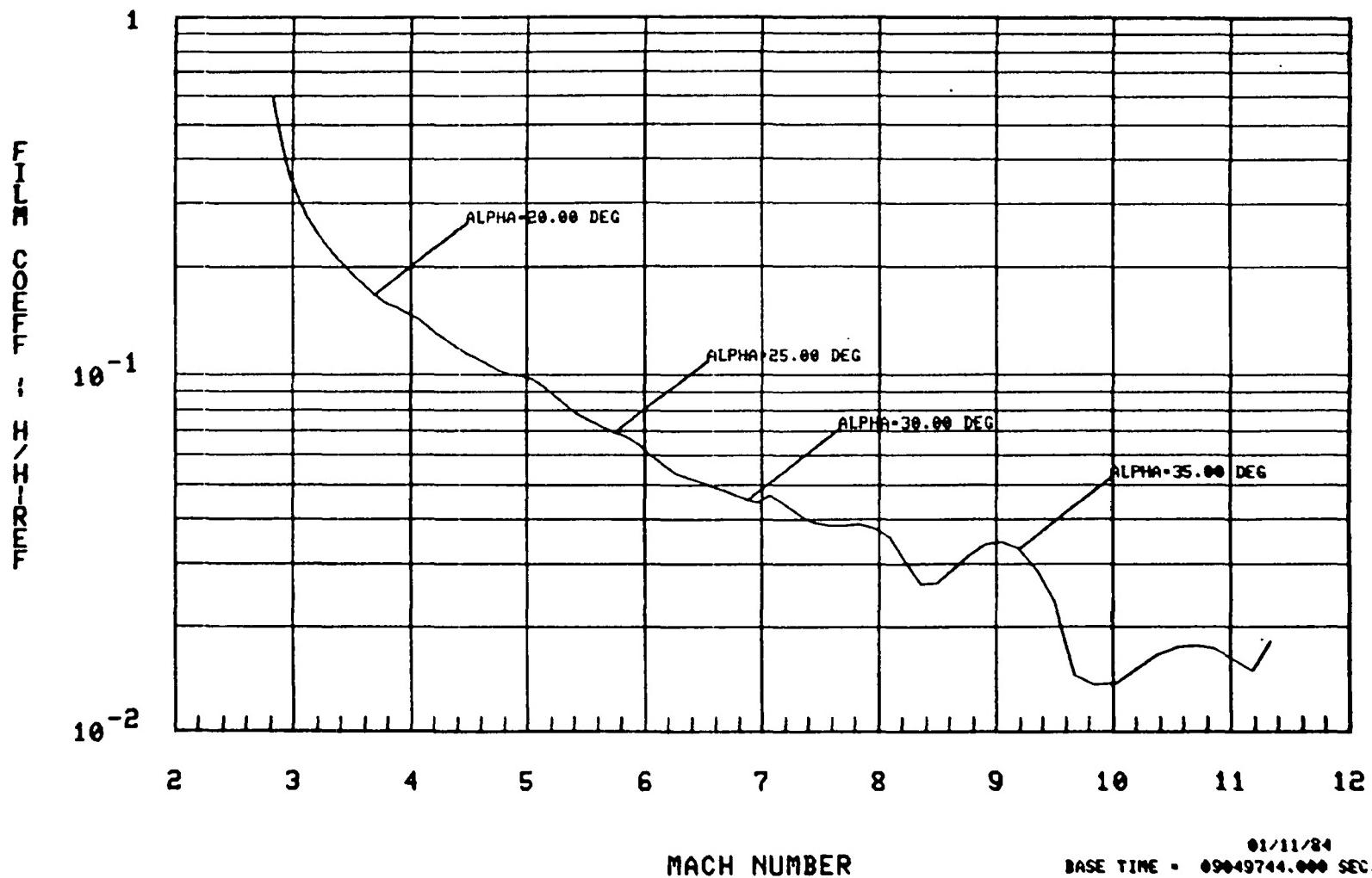


ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME - 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U07T9855A/H-REF 1065-1500 SEC



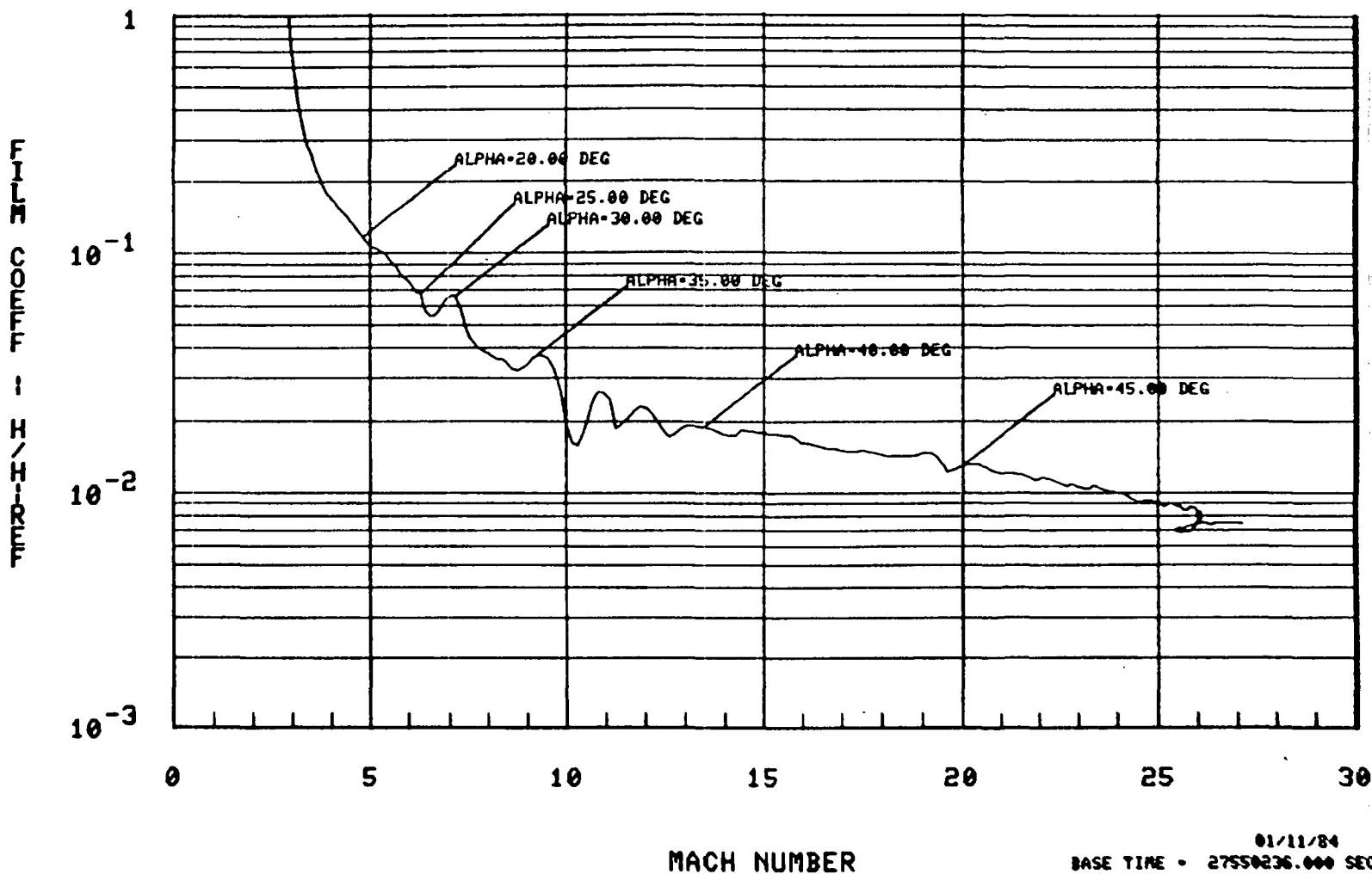
01/11/84

BASE TIME = 09049744.000 SEC.

B-131

STS-2 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U07T9855A/H-REF 200-1530 SEC

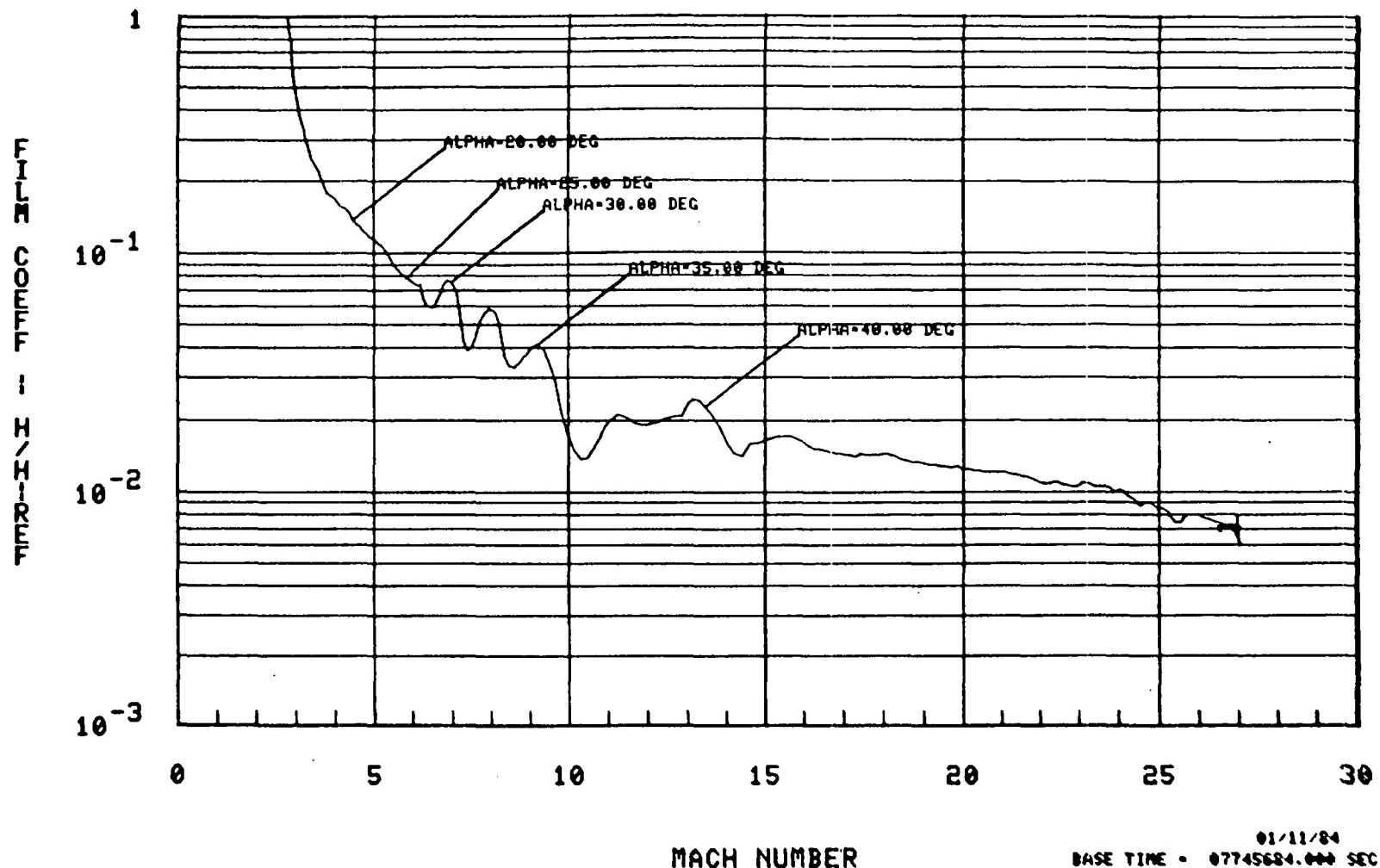


01/11/84
MACH NUMBER

01/11/84
BASE TIME • 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U07T9855A/H-REF 200-1440 SEC

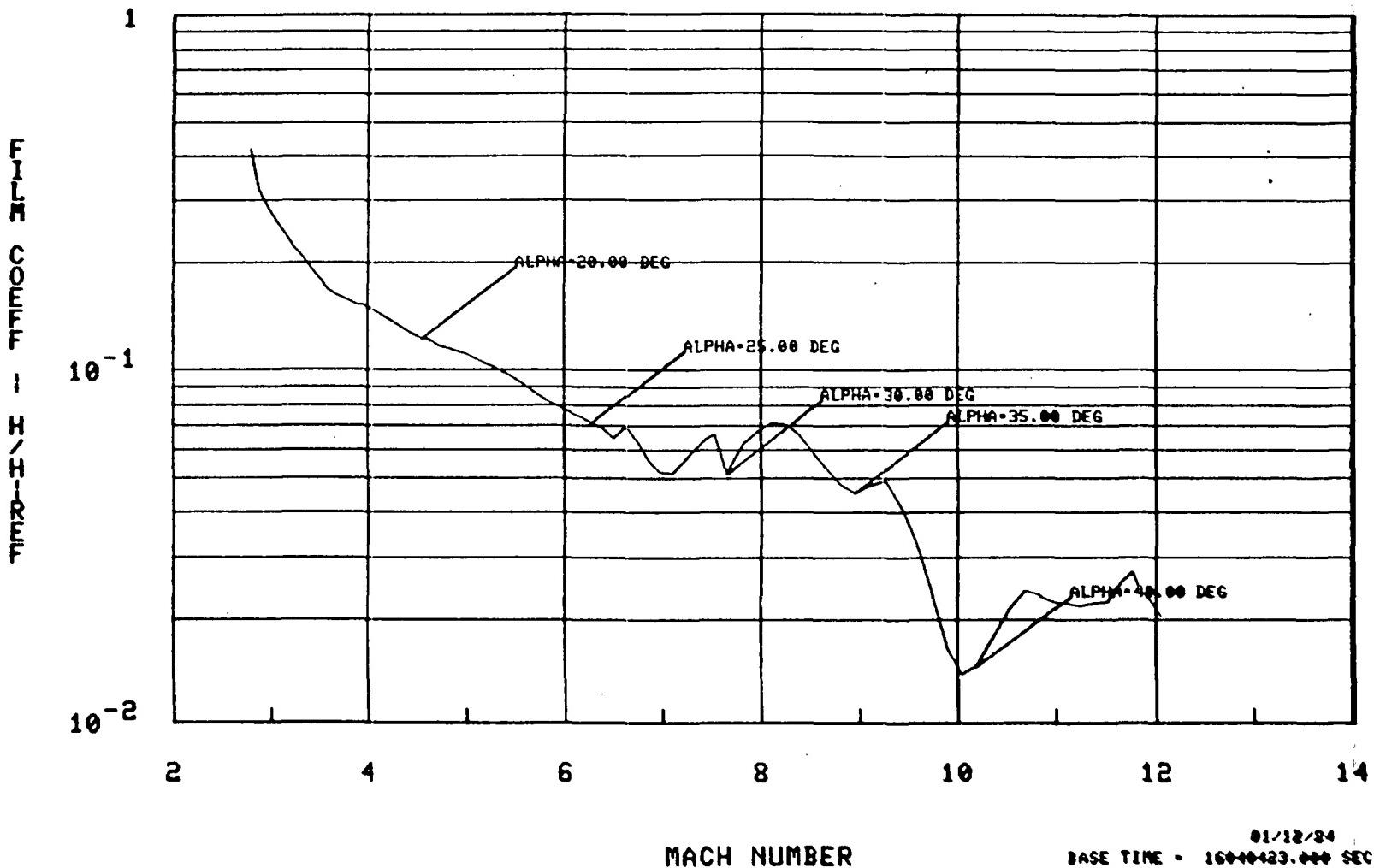


01/11/84

BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

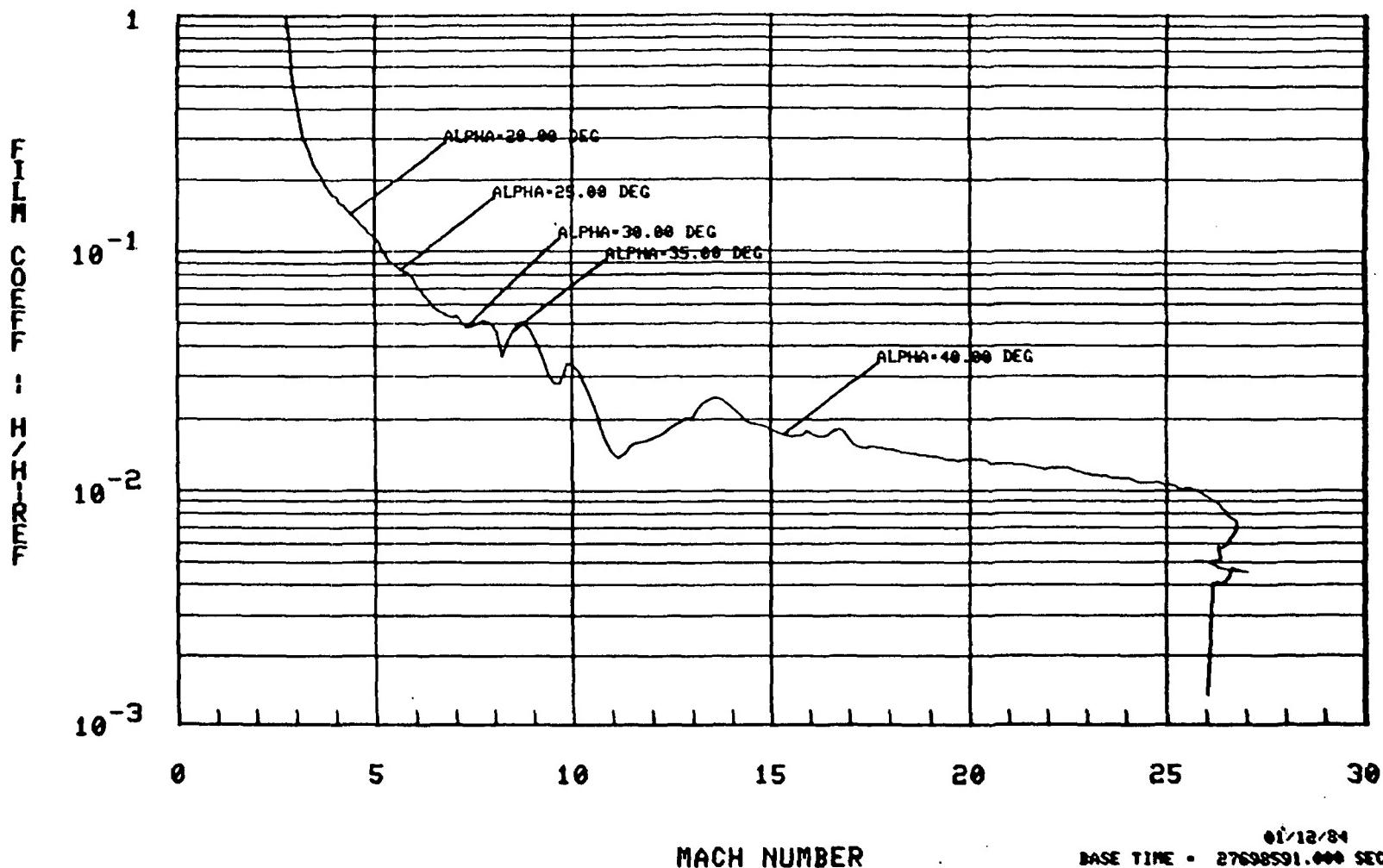
U07T9855A/H-REF 965-1360 SEC



01/12/84
BASE TIME - 1604423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U07T9855A/H-REF 150-1430 SEC



B-135

01/12/84
MACH NUMBER

BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

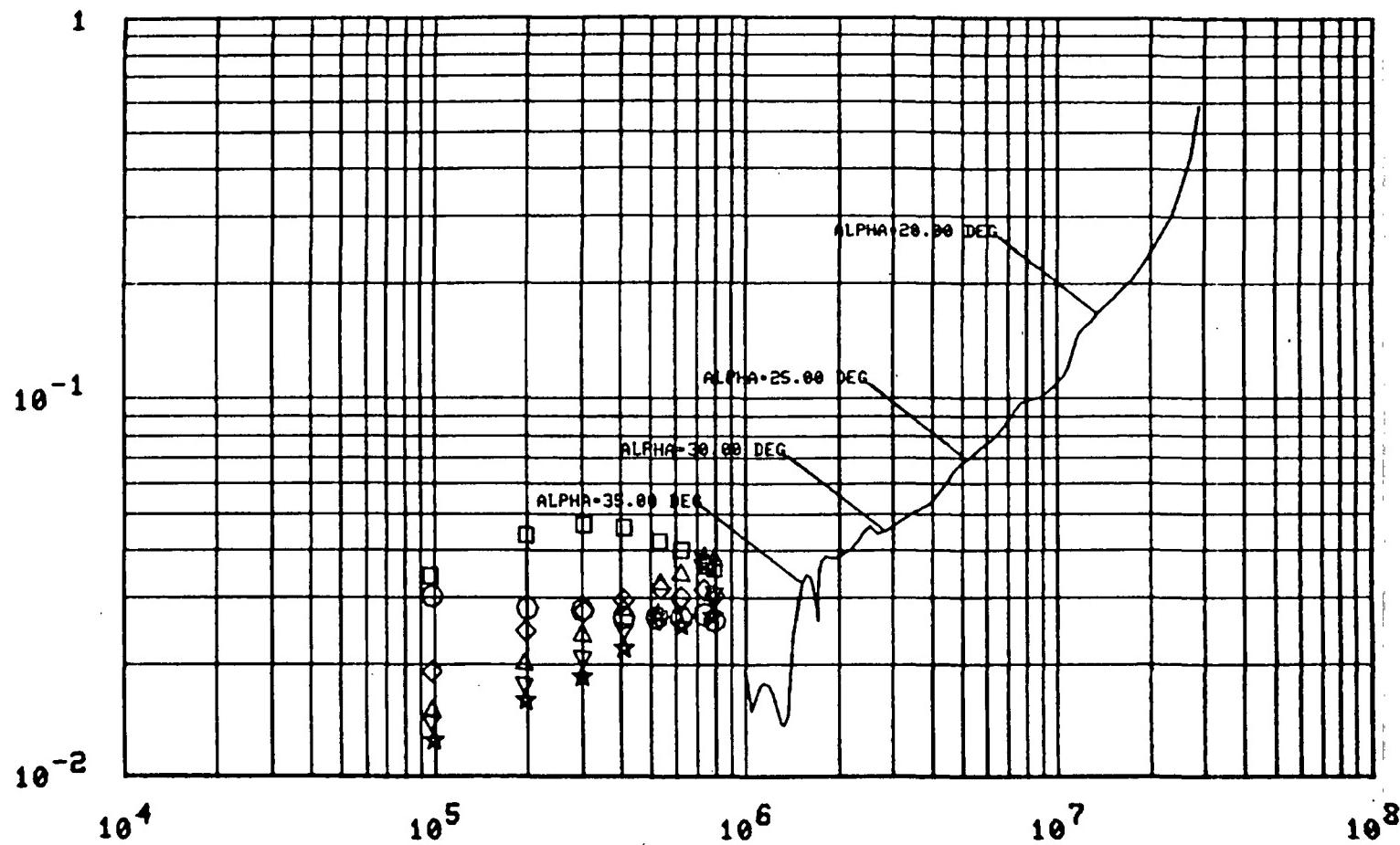
○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9855A/H-REF 1065-1500 SEC

WAKE COMPU - H-H-REFW

B-136



REYNOLDS NUMBER (NS)

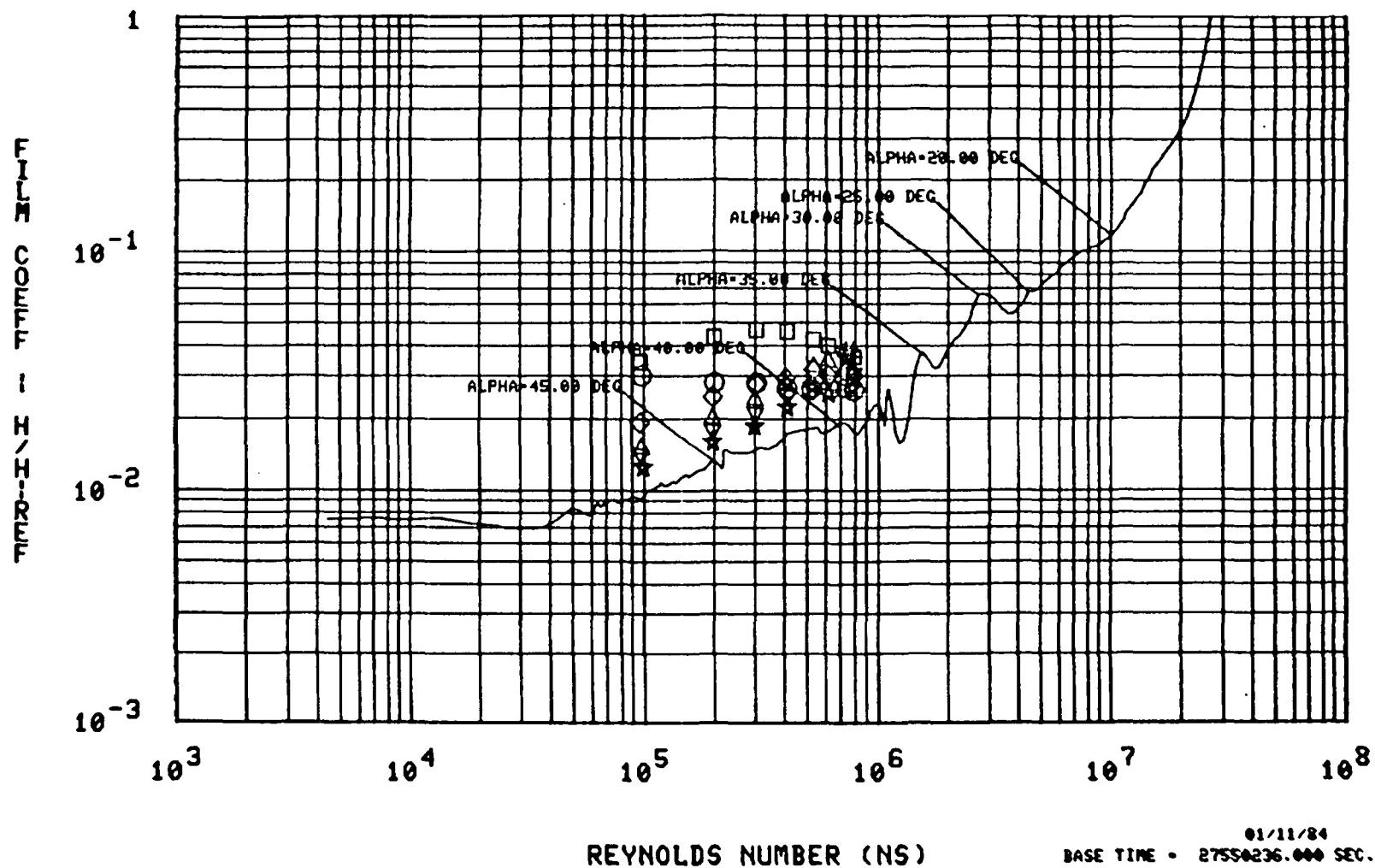
01/11/84
 BASE TIME - 69049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U87T9855A/H-REF 200-1530 SEC



B-137

REYNOLDS NUMBER (NS)

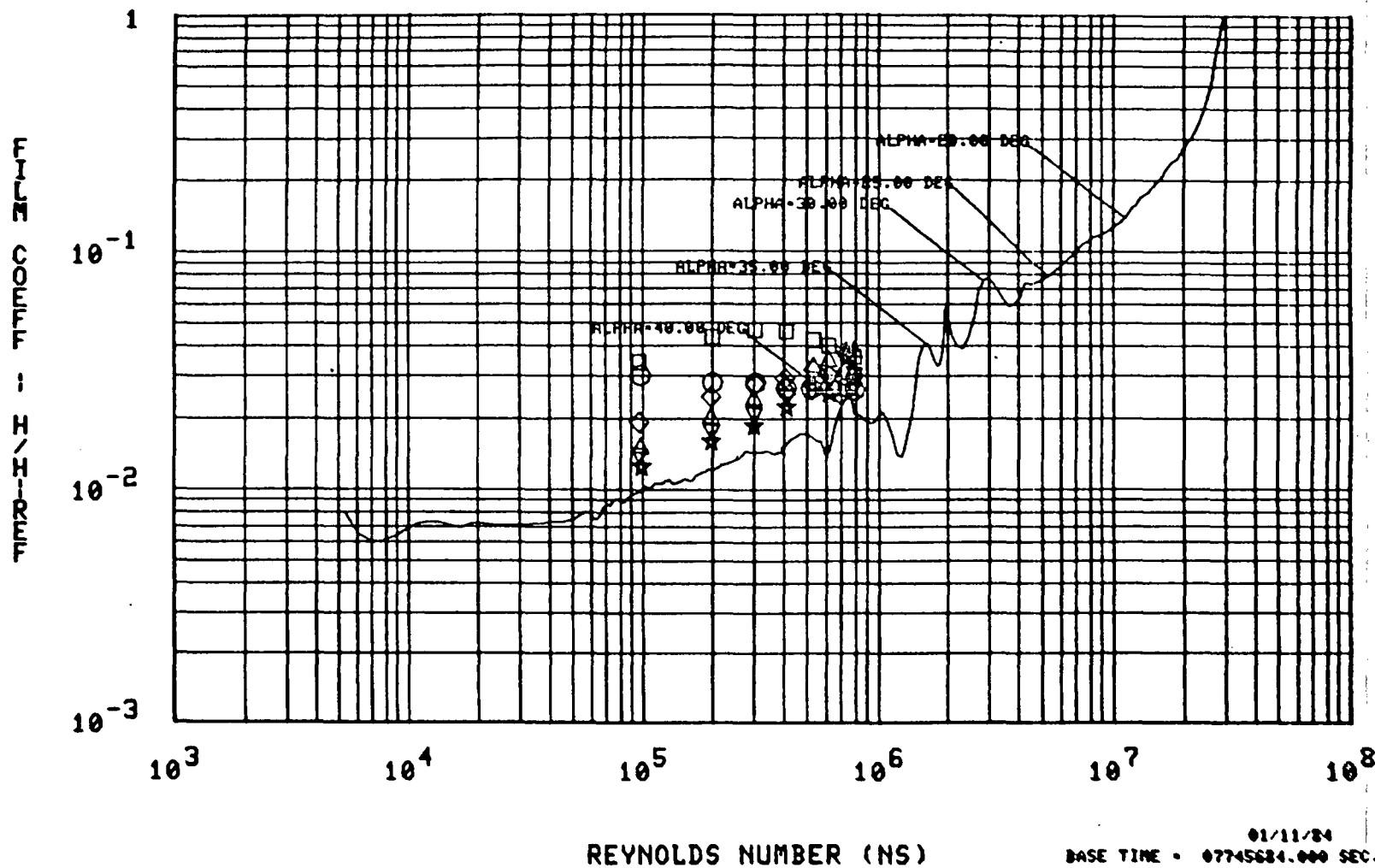
01/11/84
 BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400



OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9855A/H-REF 200-1440 SEC



B-138

REYNOLDS NUMBER (NS)

01/11/84
BASE TIME = 07745624.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

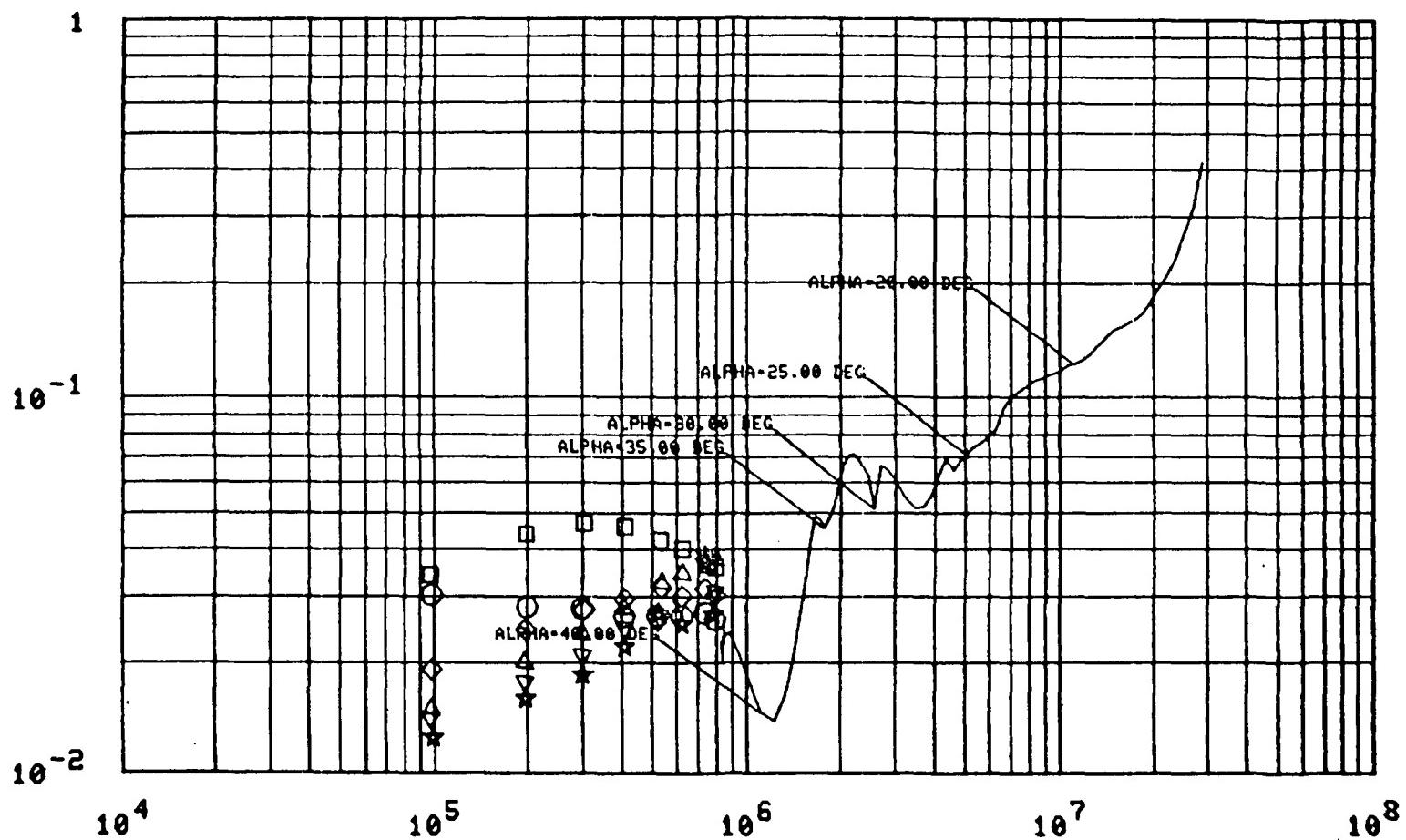
○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9855A/H-REF 965-1360 SEC

LINE DRAWINGS - H-REF-84

B-139



REYNOLDS NUMBER (NS)

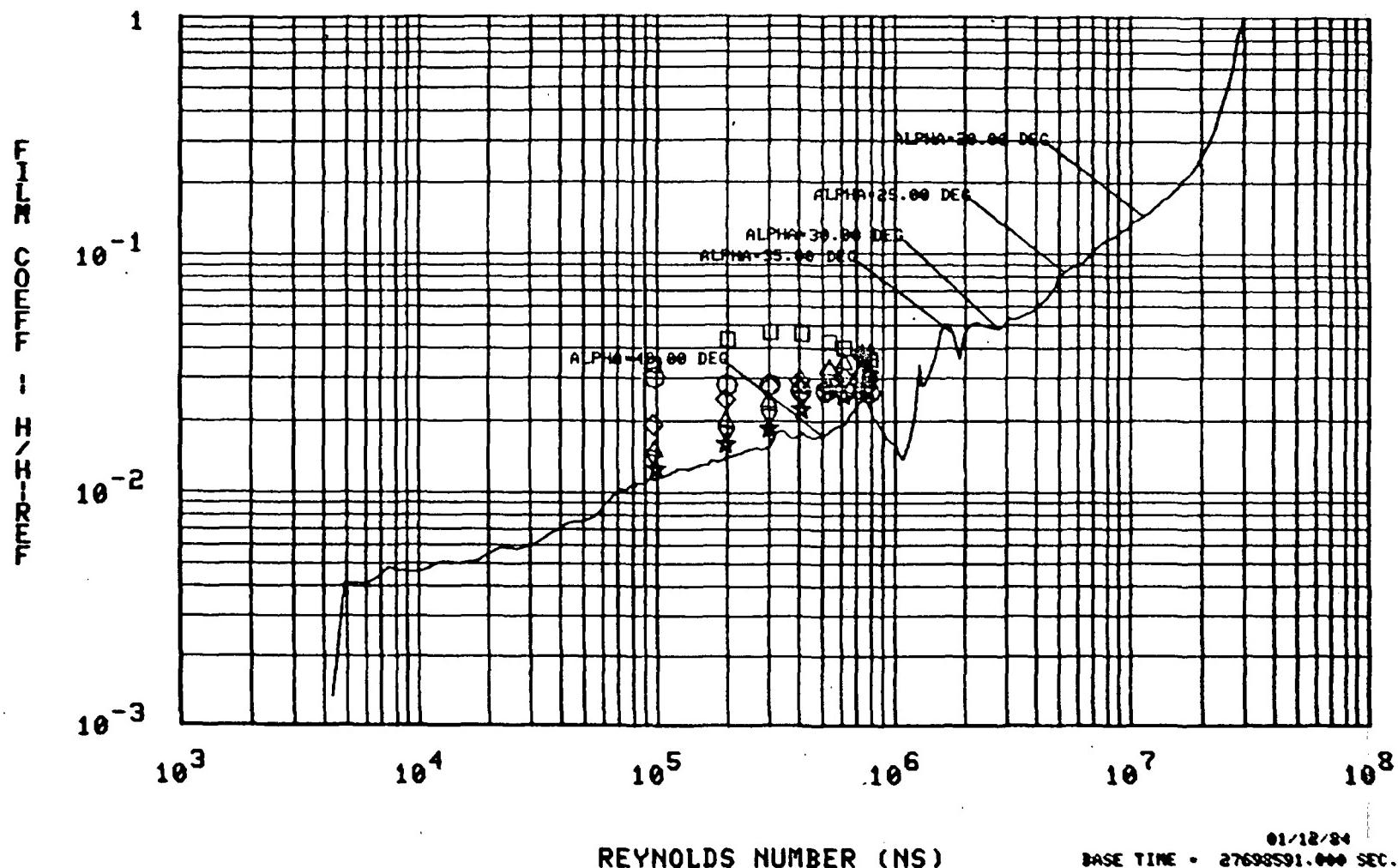
01/18/84
 BASE TIME = 1604423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

○ □ ◇ △ ▲ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9855A/H-REF 150-1430 SEC



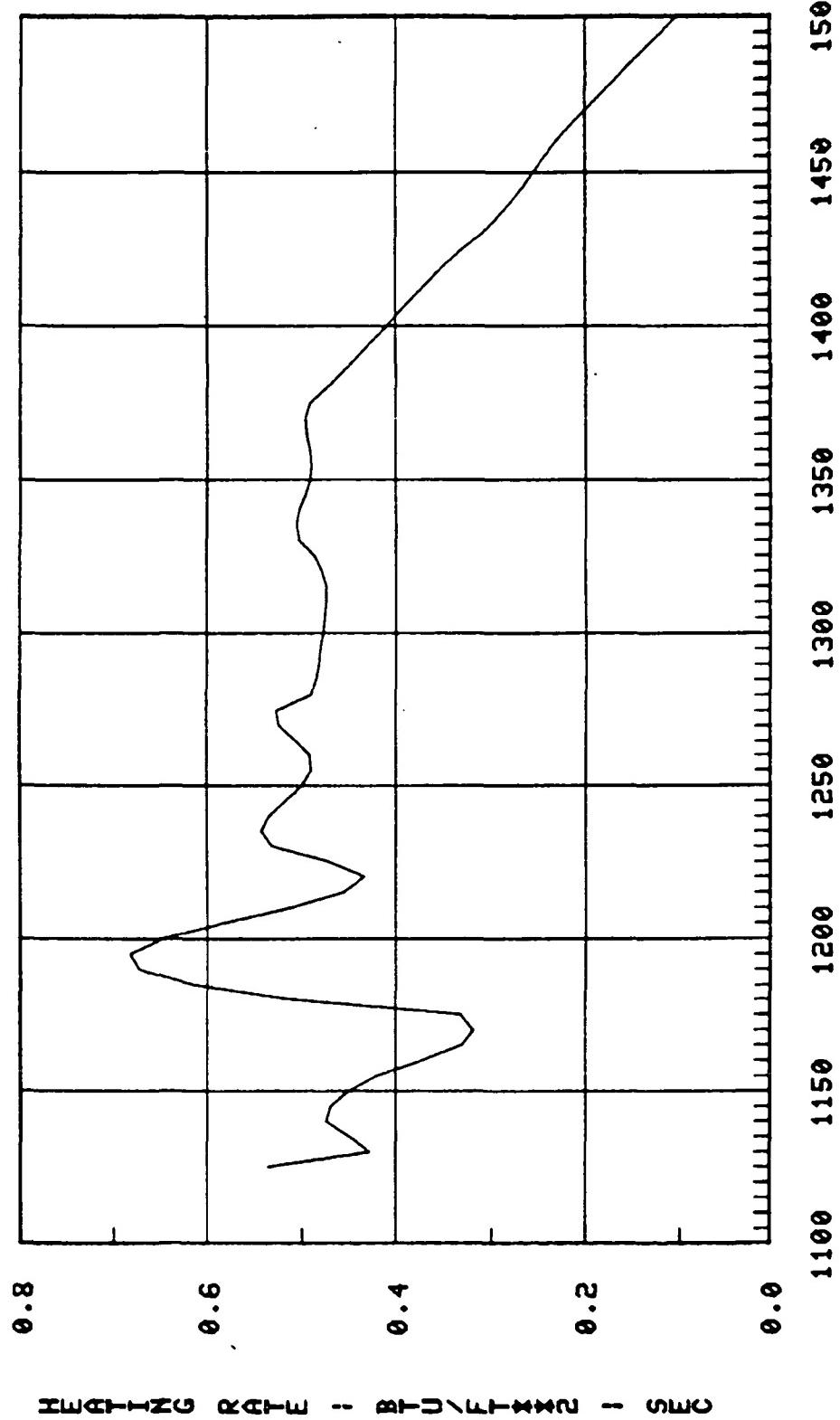
B-140

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U6779855A

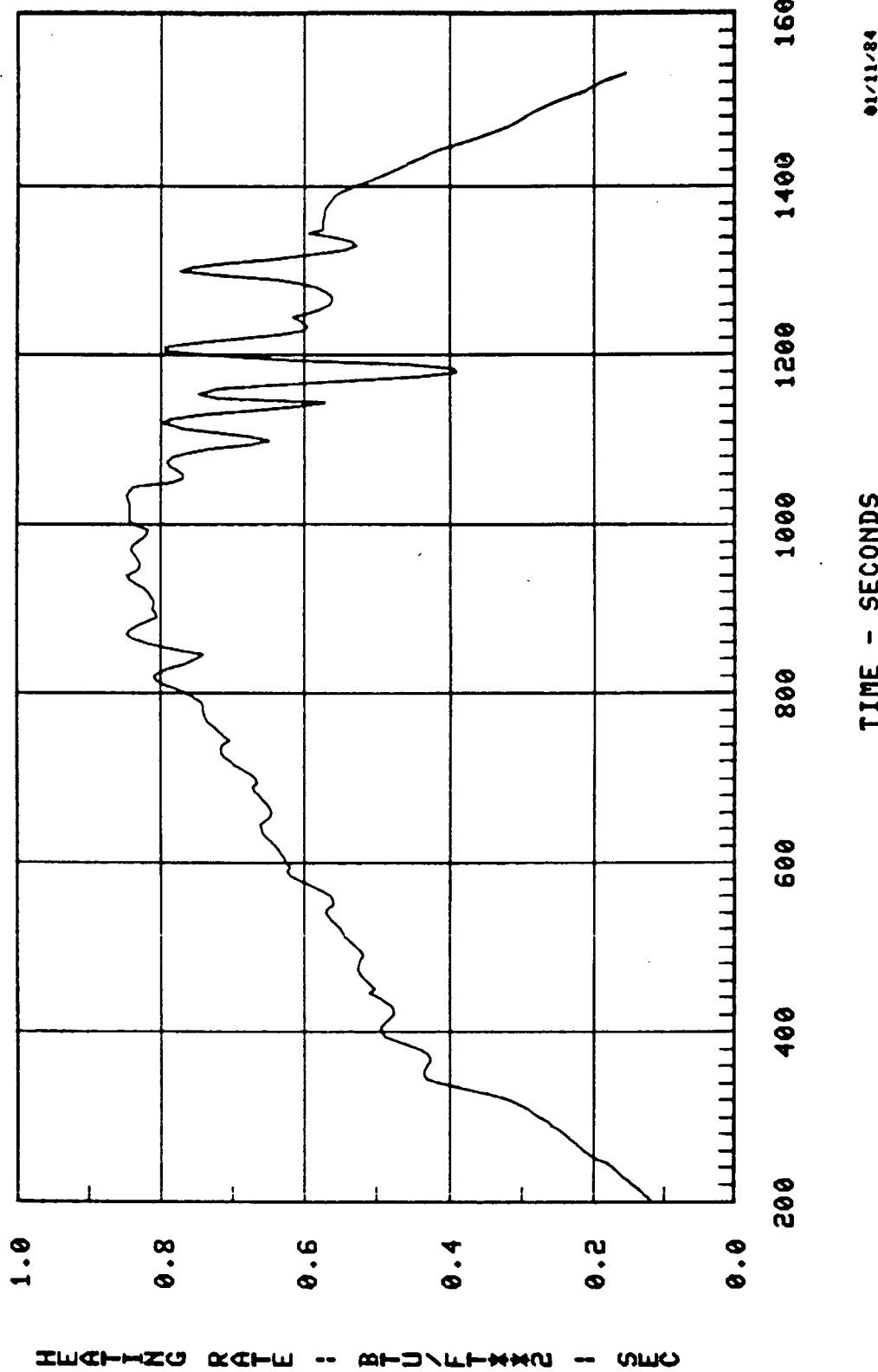


TIME - SECONDS

01/11/84

STS-2 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U0779855A

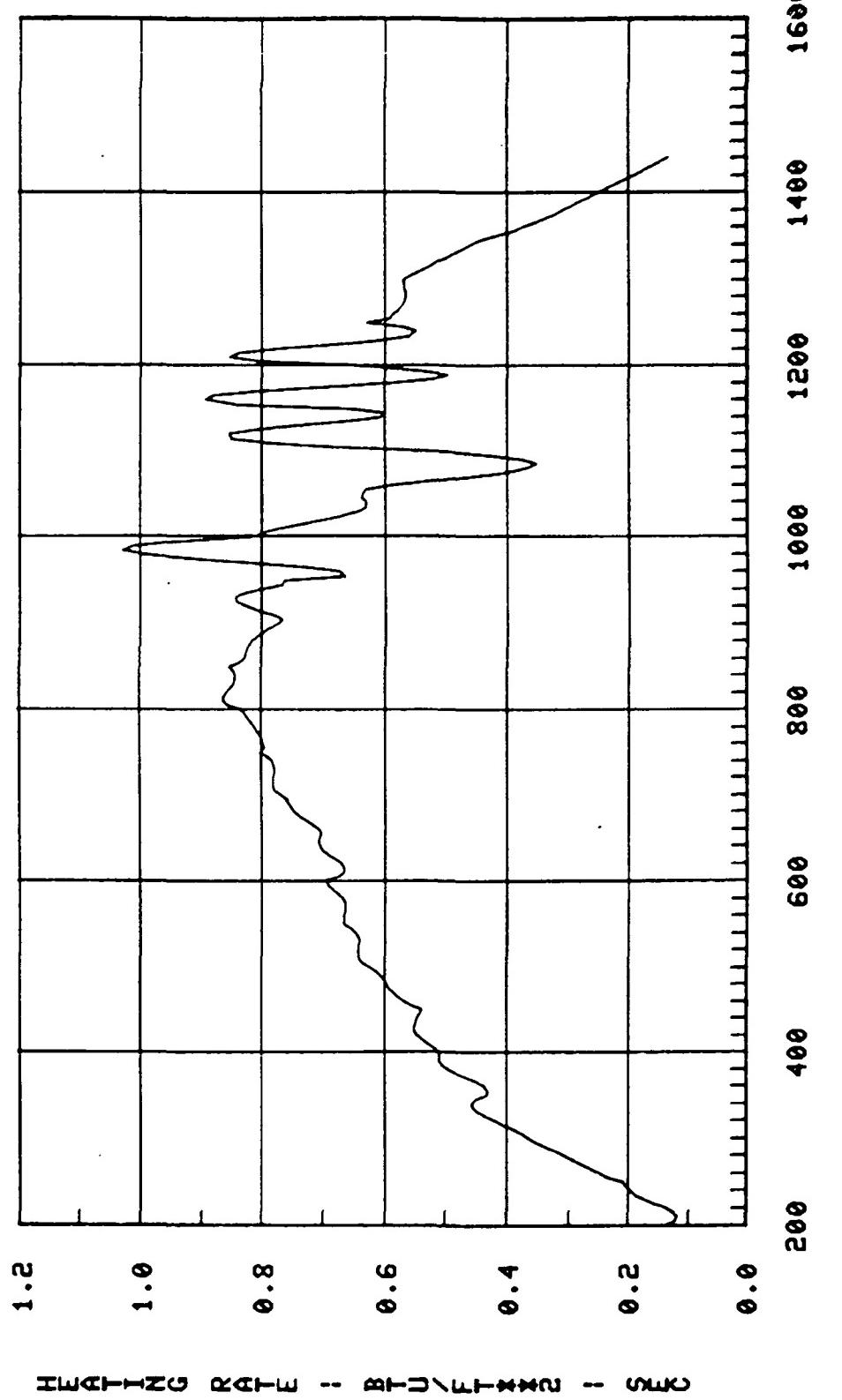


B-142

01/11/84

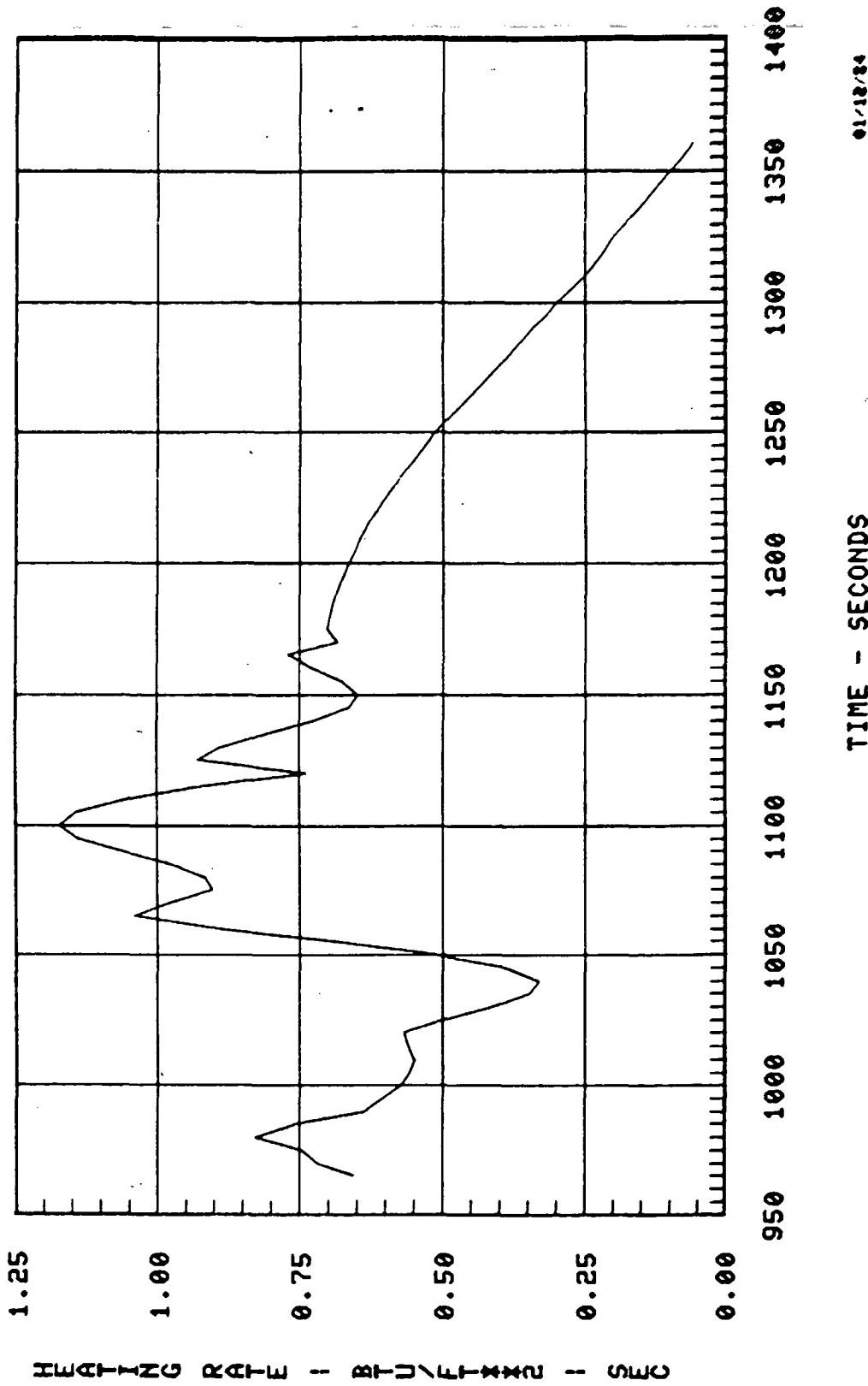
STS-3 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U0779855A



STS-4 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U8779855A

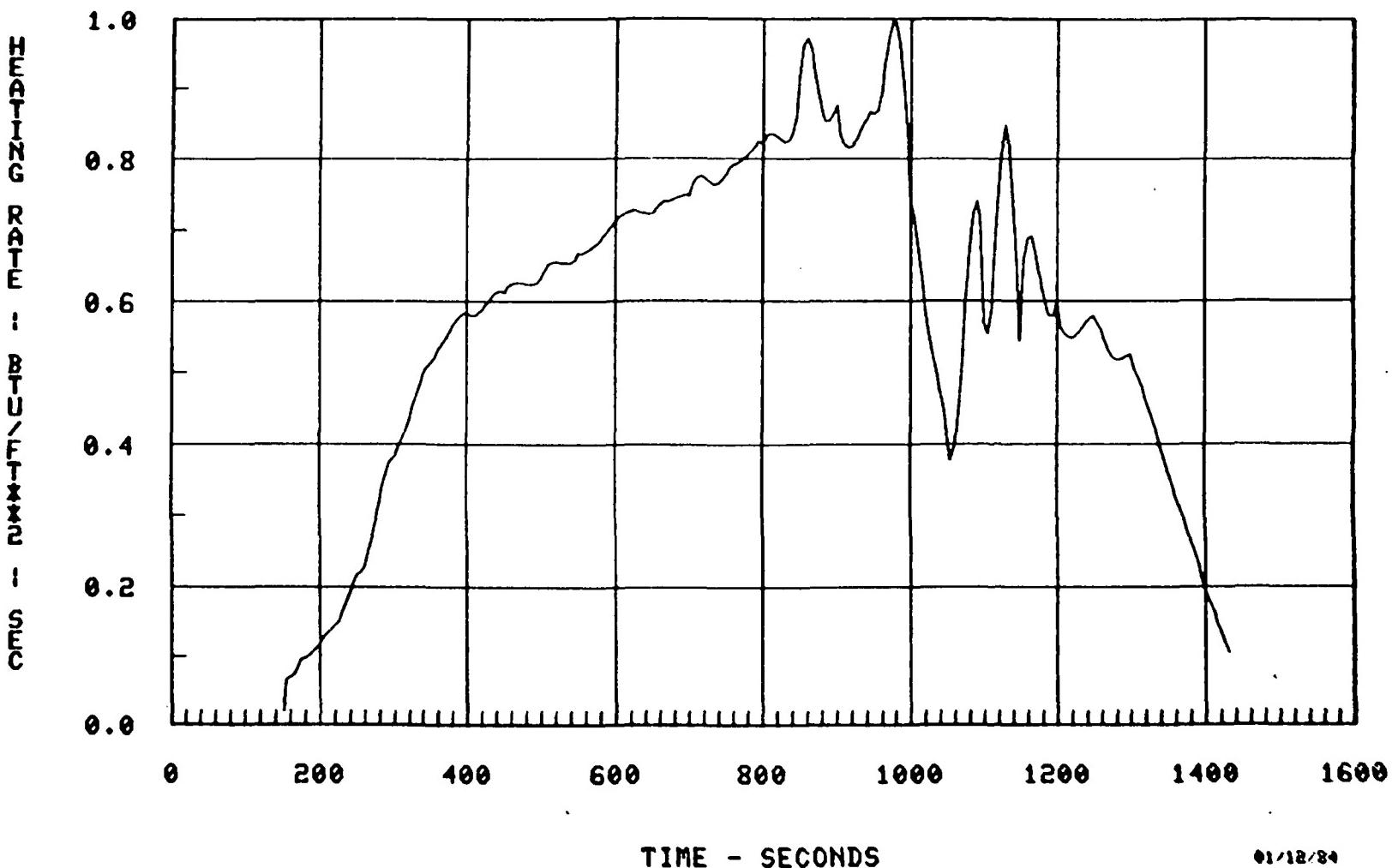


B-144

•1/12/84

STS-5 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

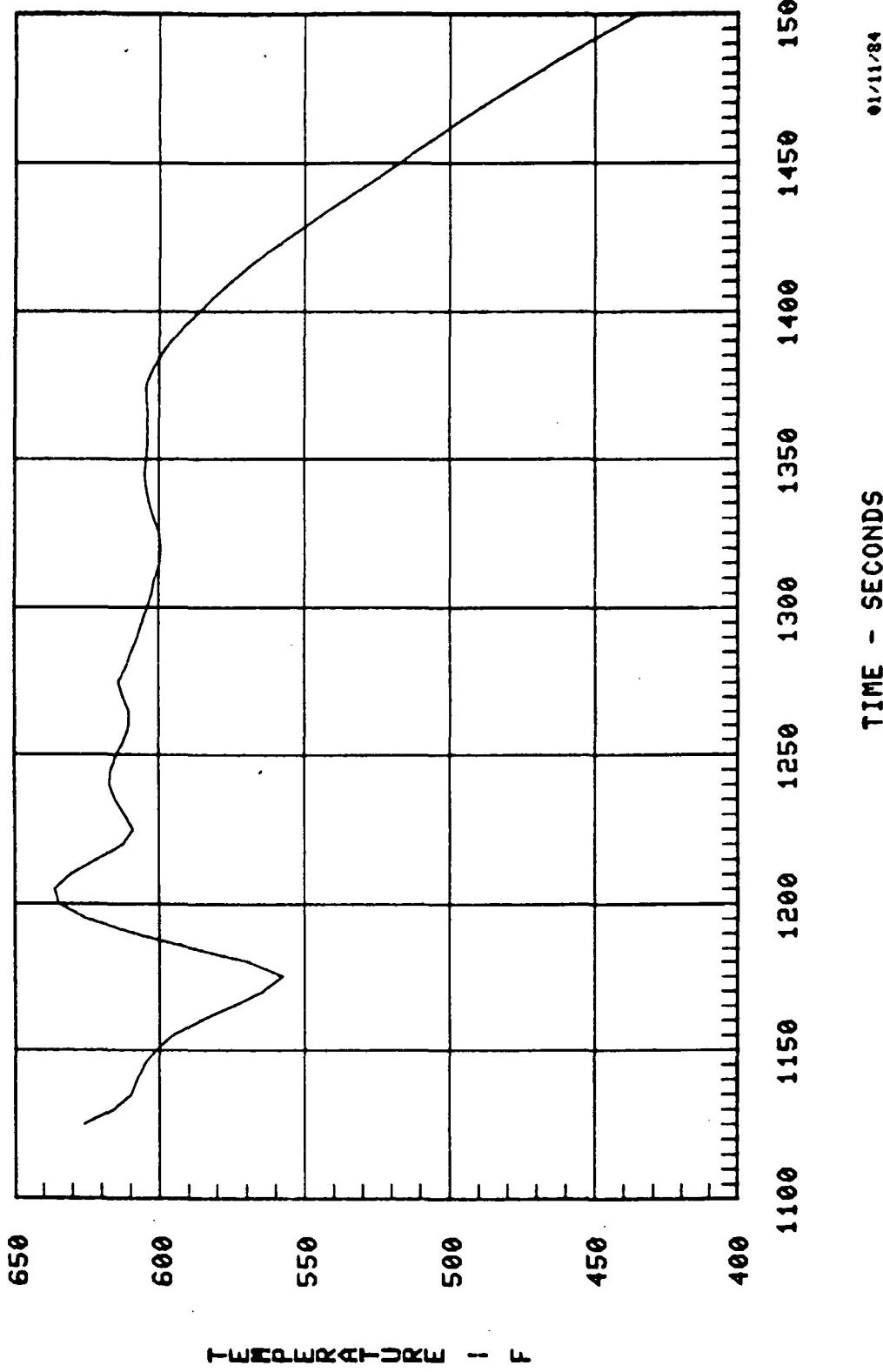
U07T9855A



01/12/84

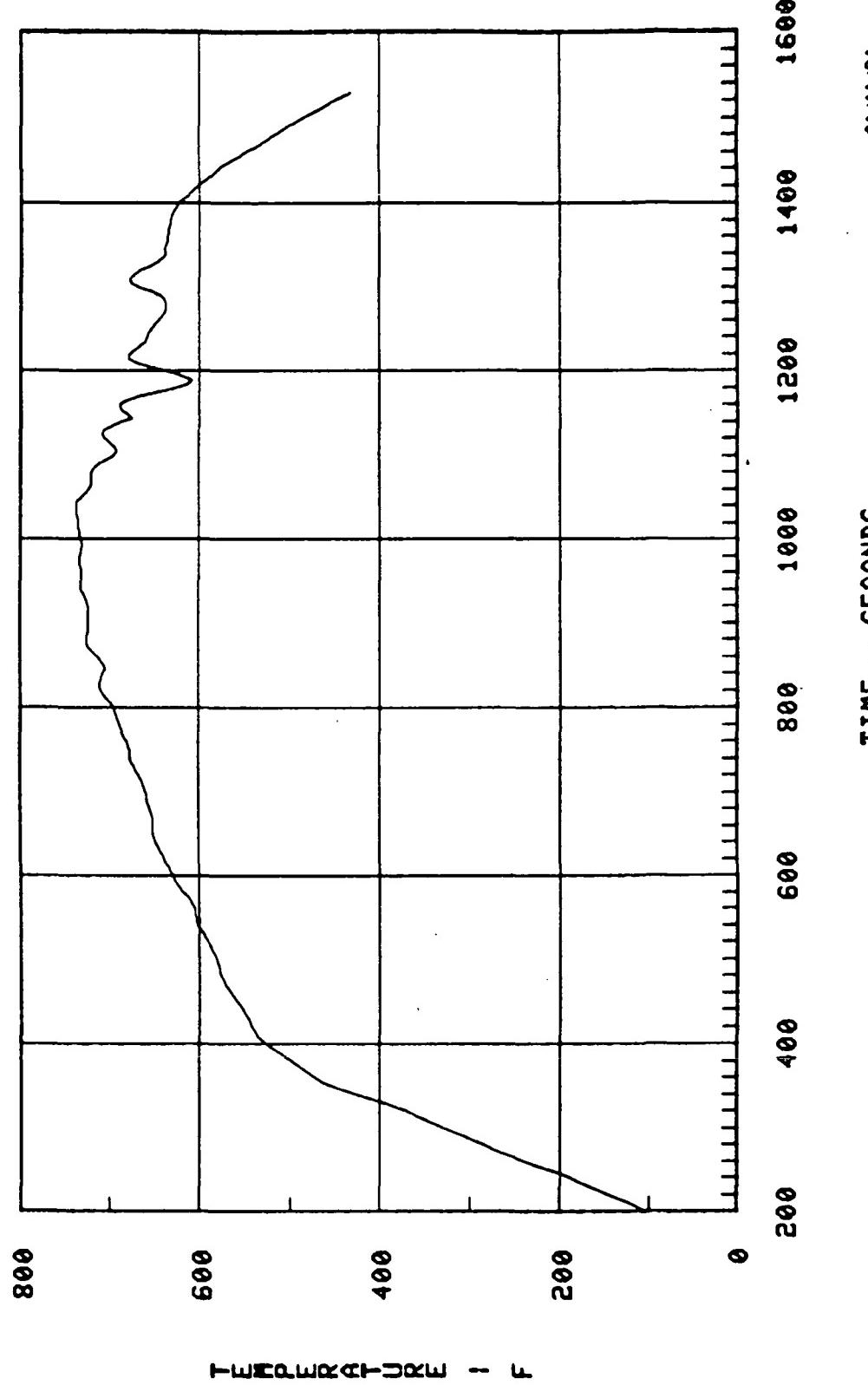
STS-1 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U977T9855A



STS-2 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

08779855A

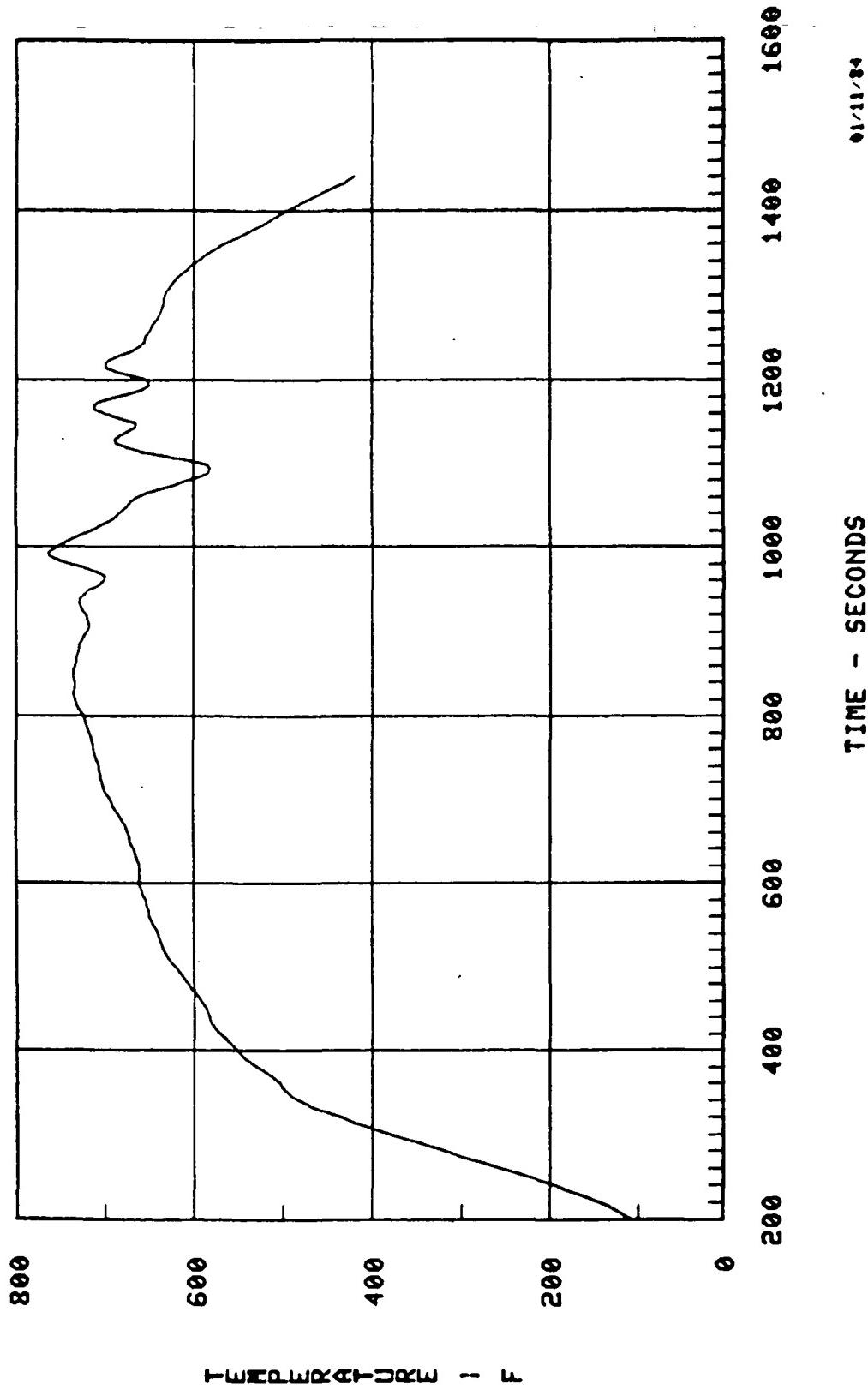


B-147

01/11/84

STS-3 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U0779855A

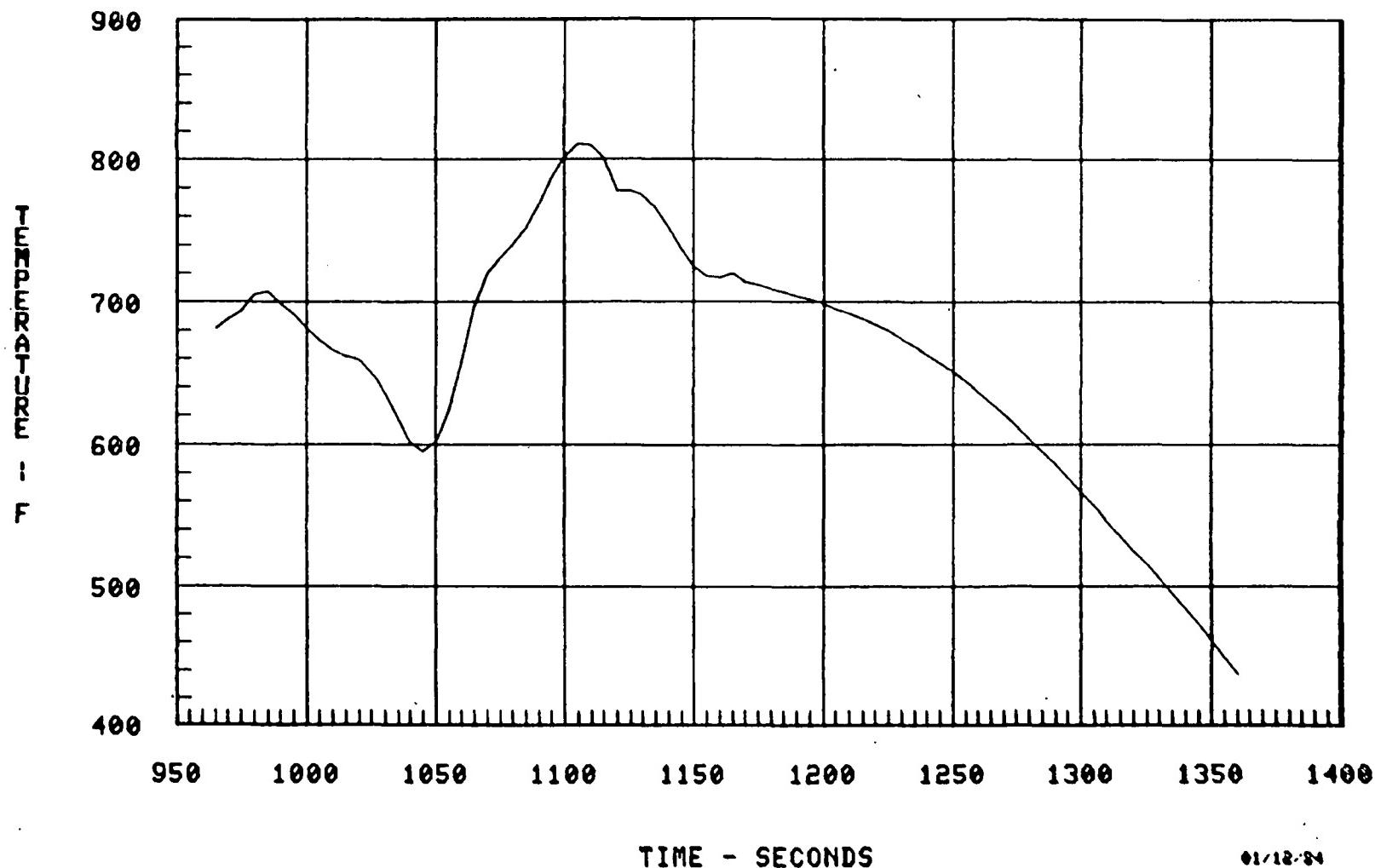


B-148

01/11/84

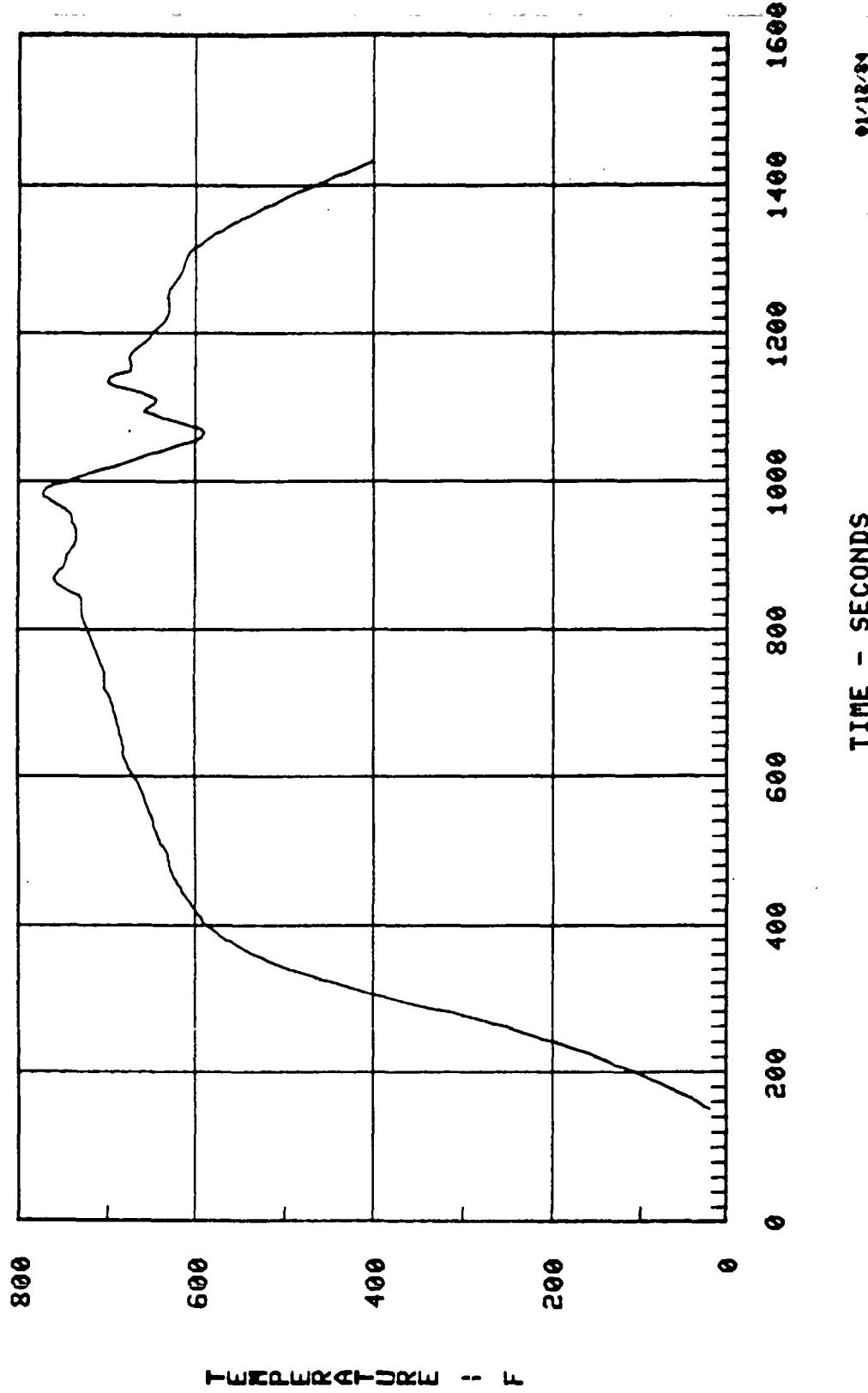
STS-4 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U07T9855A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.425) Z=400

U0779855A



B-150

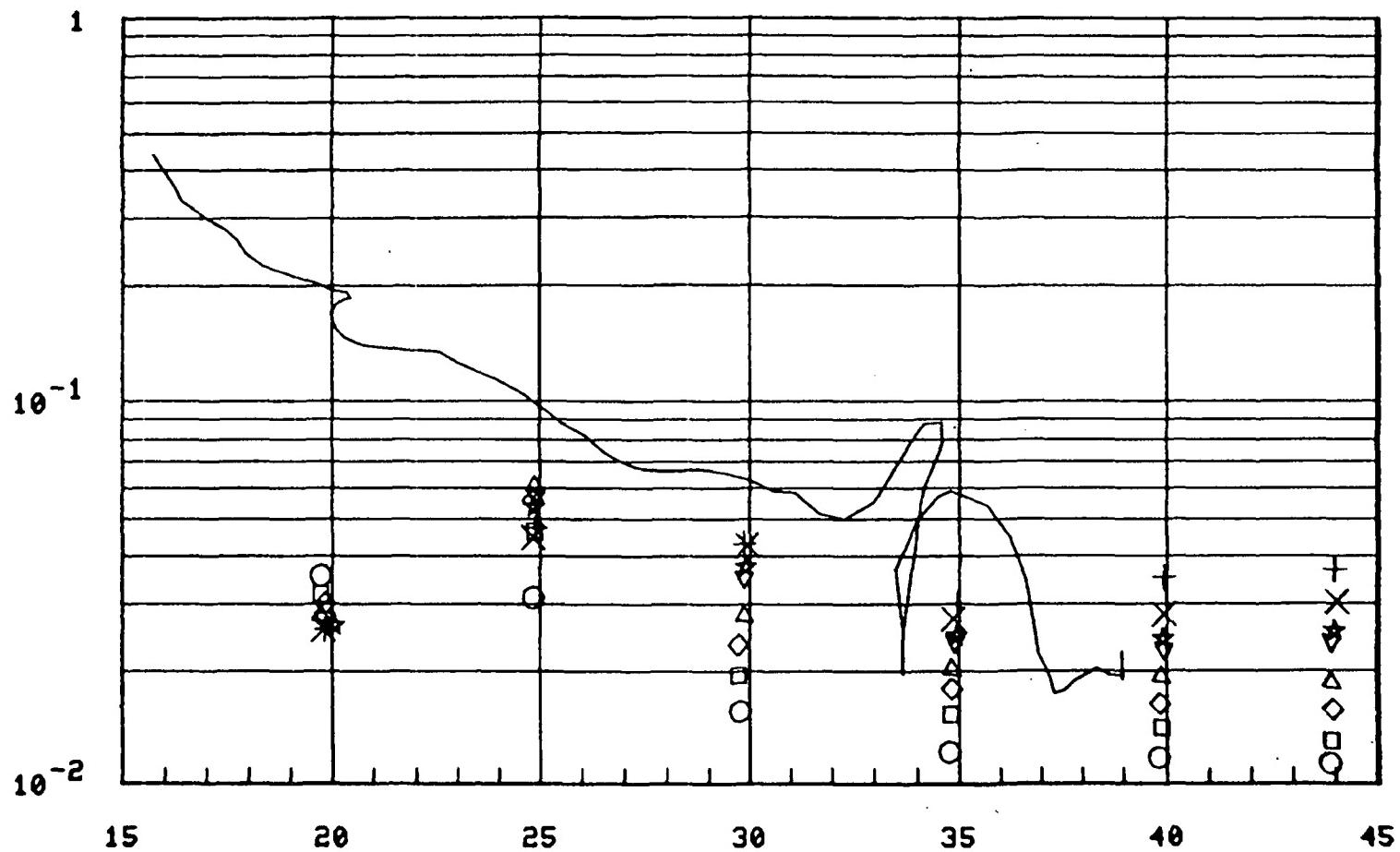
01/12/84

STS-1 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9899A/H-REF 1865-1500 SEC

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B-151

ANGLE-OF-ATTACK - DEG

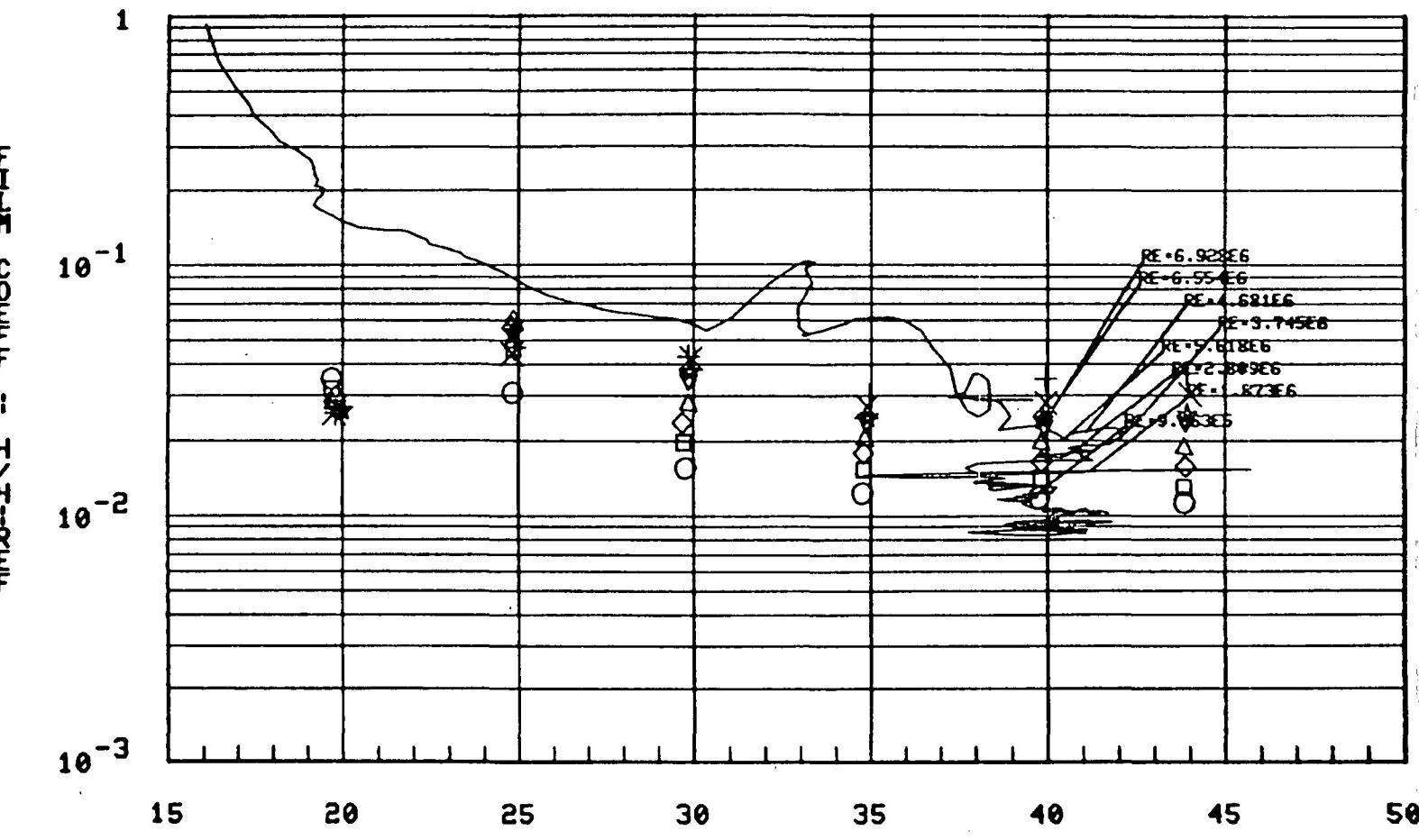
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9899A/H-REF 200-1530 SEC

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+
X



B-152

ANGLE-OF-ATTACK - DEG

01/11/84

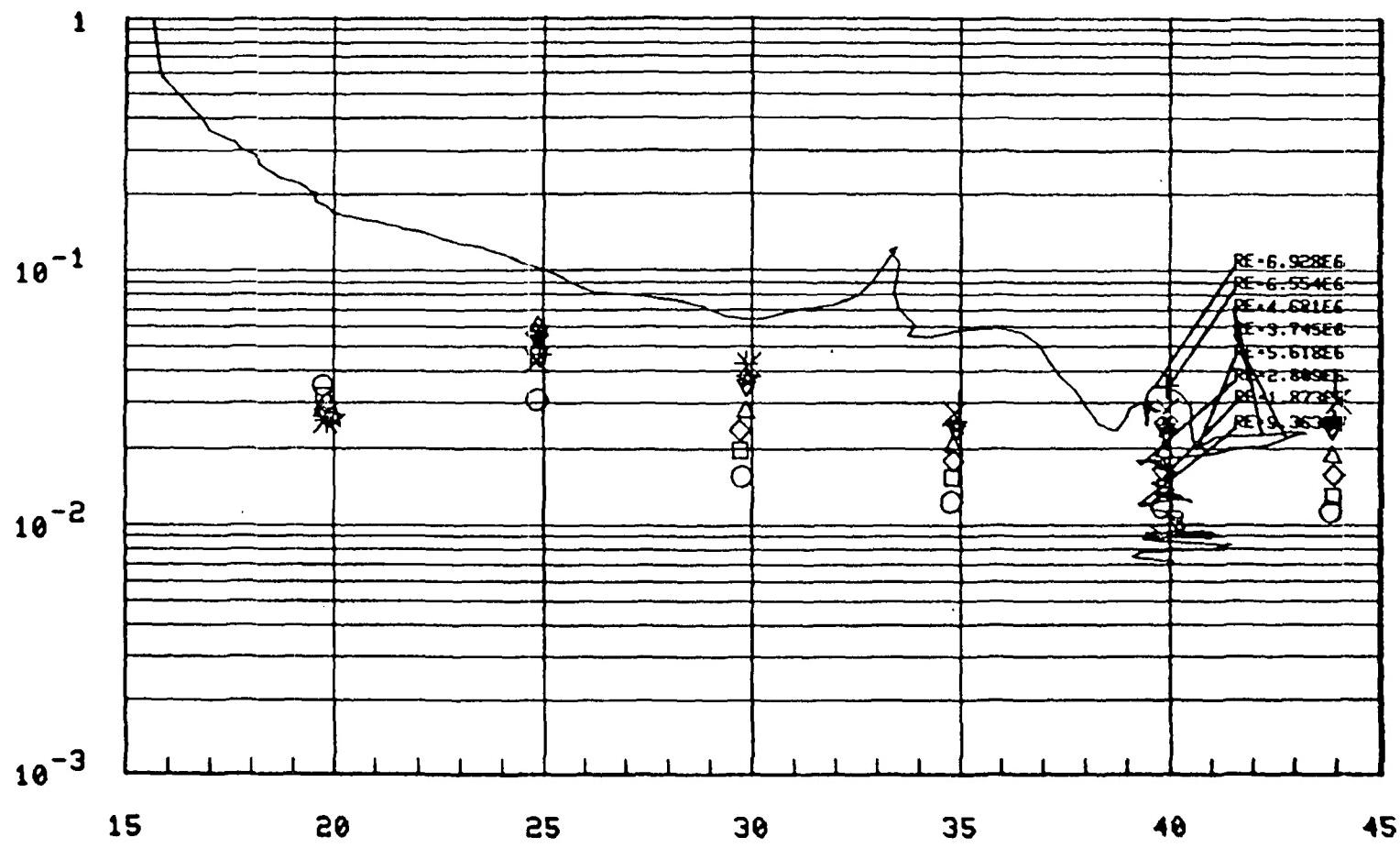
BASE TIME • 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9899A/H-REF 200-1440 SEC

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B-153

01/11/84
ANGLE-OF-ATTACK - DEG

01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

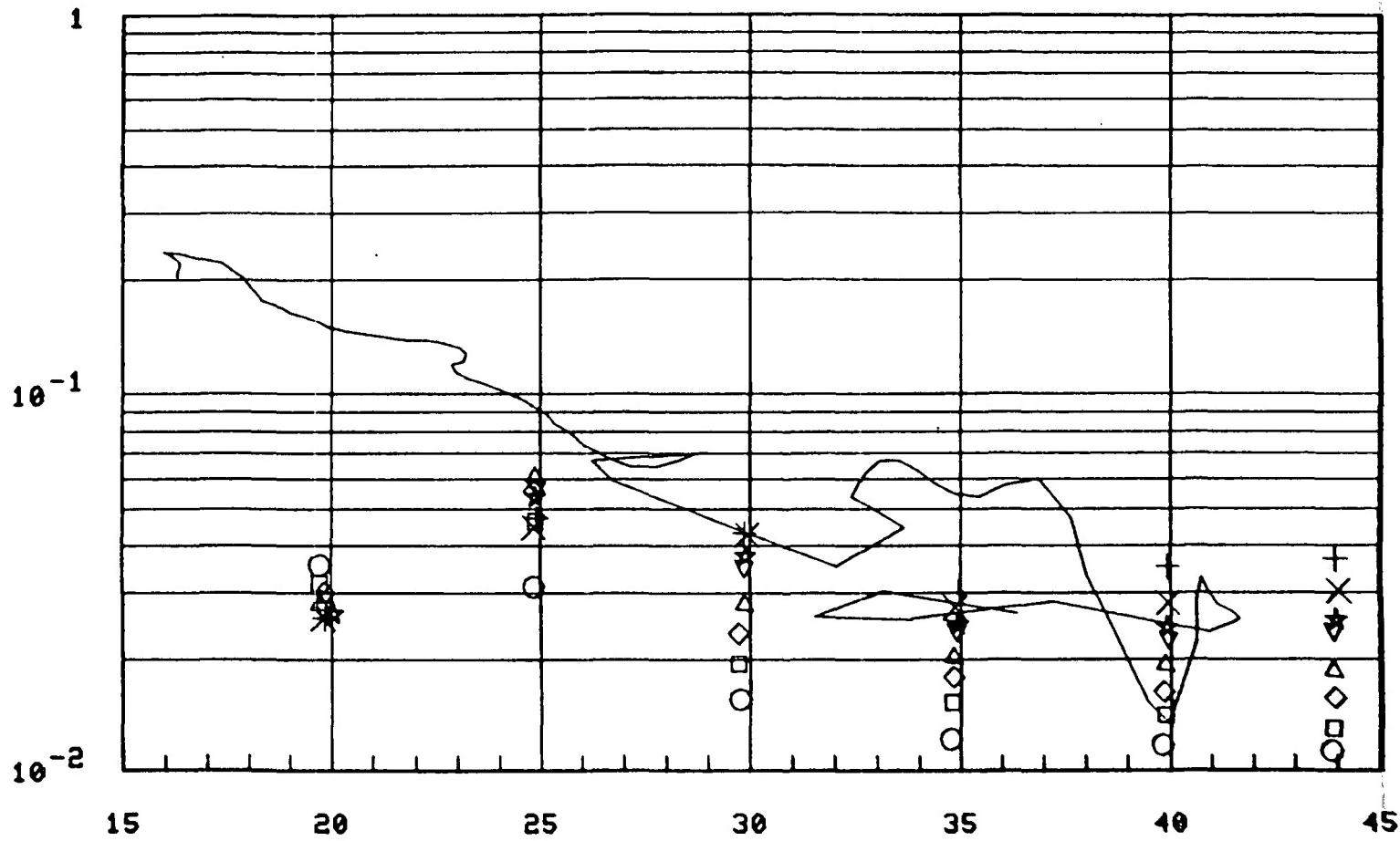
OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U87T9899A/H-REF 965-1368 SEC

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LINE CODES -- H-H-H-H-H

B-154



ANGLE-OF-ATTACK - DEG

01/18/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

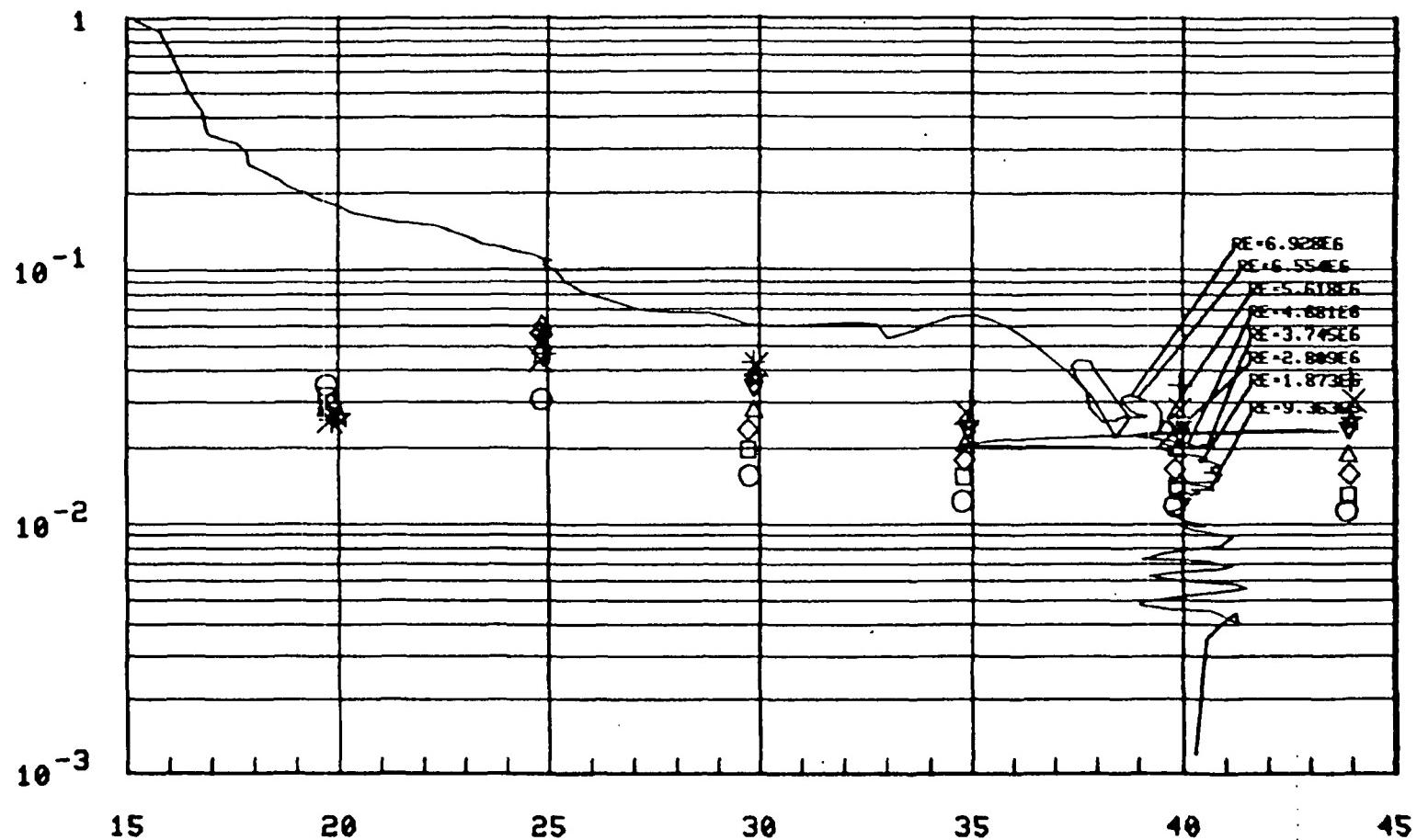
○ □ ◇ △ ★ + X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9899A/H-REF 150-1430 SEC

TIME DOWN - H\MM\SS

B-155



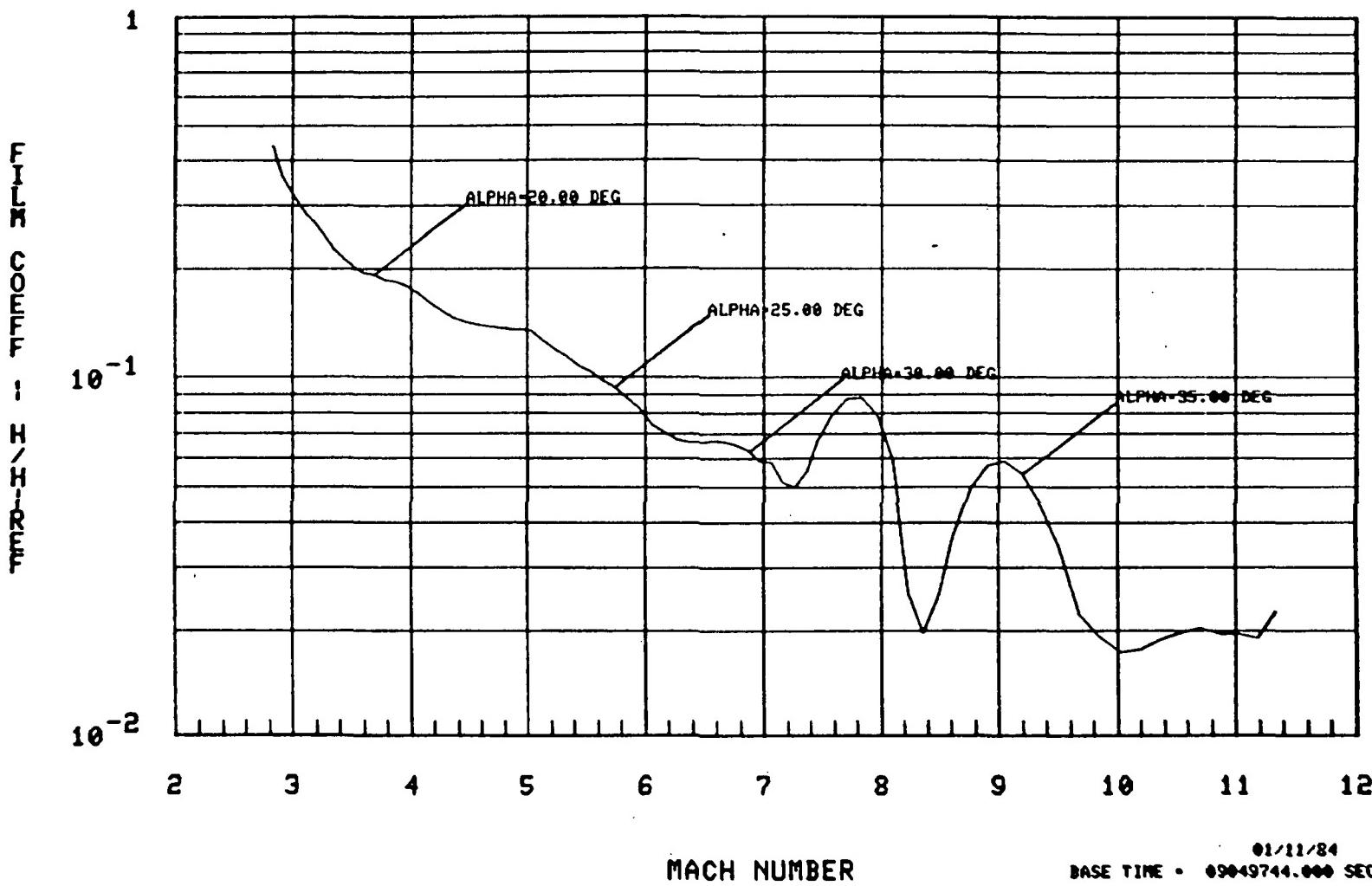
ANGLE-OF-ATTACK - DEG

01/12/84

BASE TIME • 27698591.000 SEC.

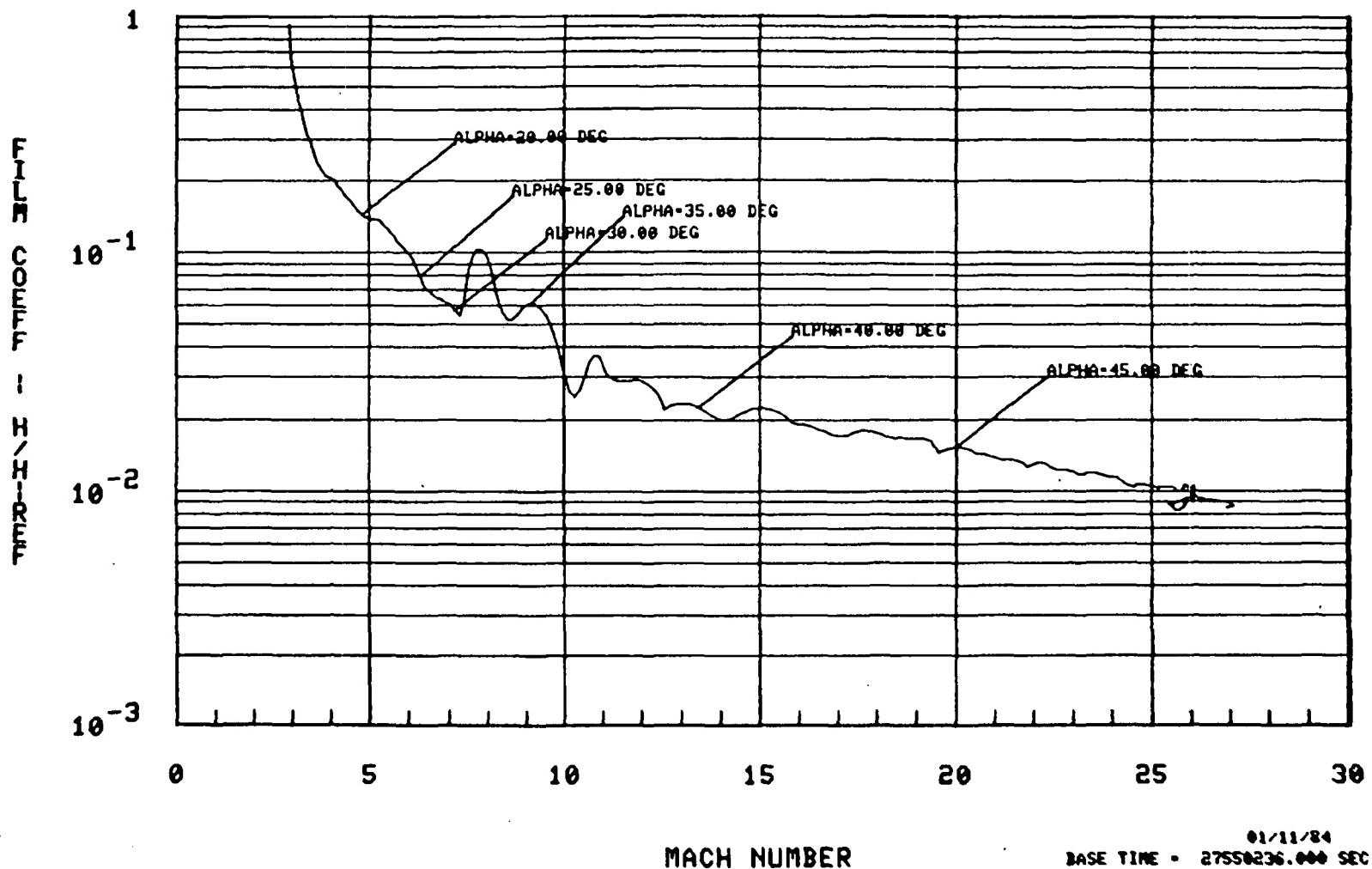
STS-1 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

U07T9899A/H-REF 1065-1500 SEC



STS-2 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

U07T9899A/H-REF 200-1530 SEC



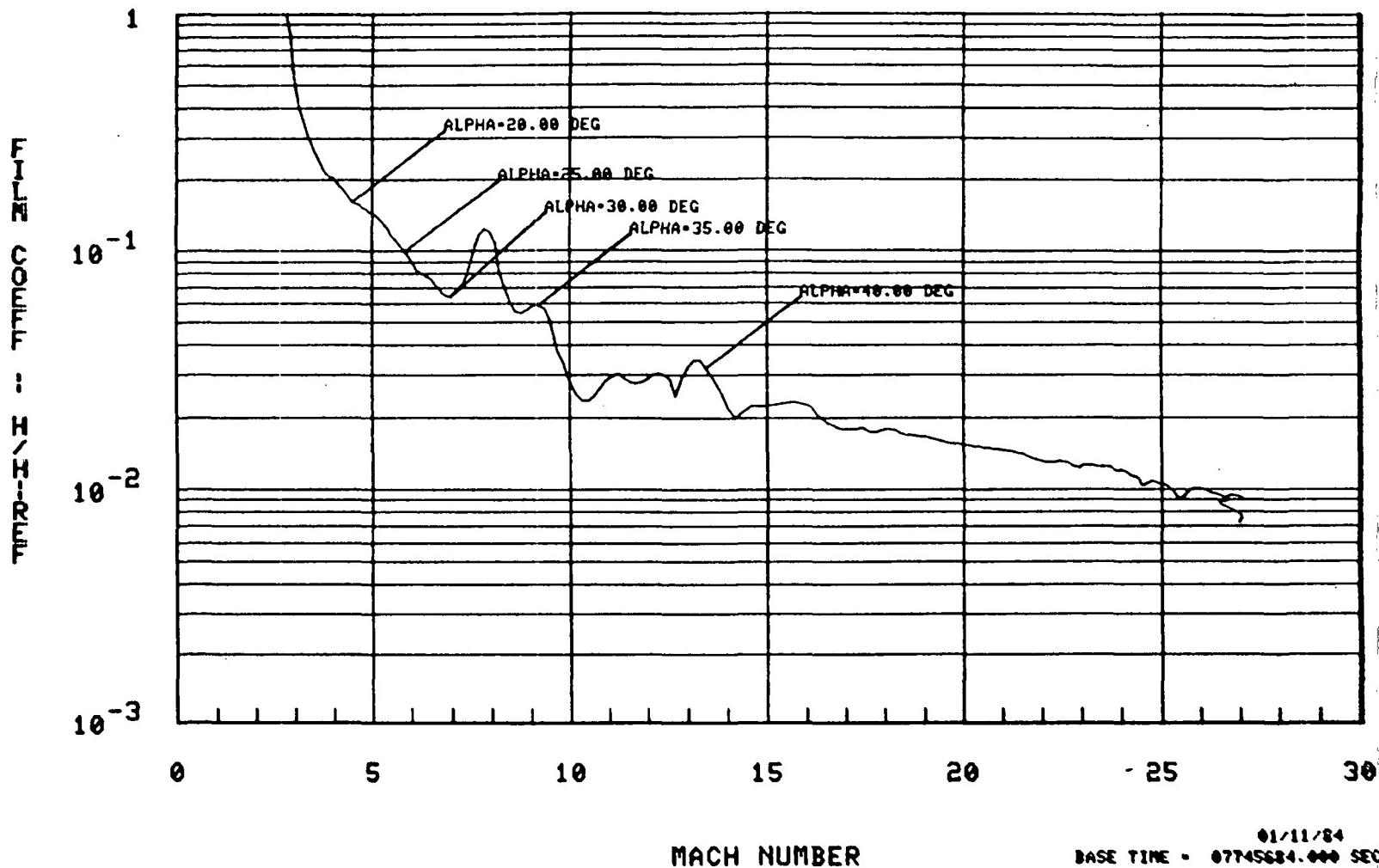
B-157

01/11/84

BASE TIME = 27550230.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

U07T9899A/H-REF 200-1440 SEC



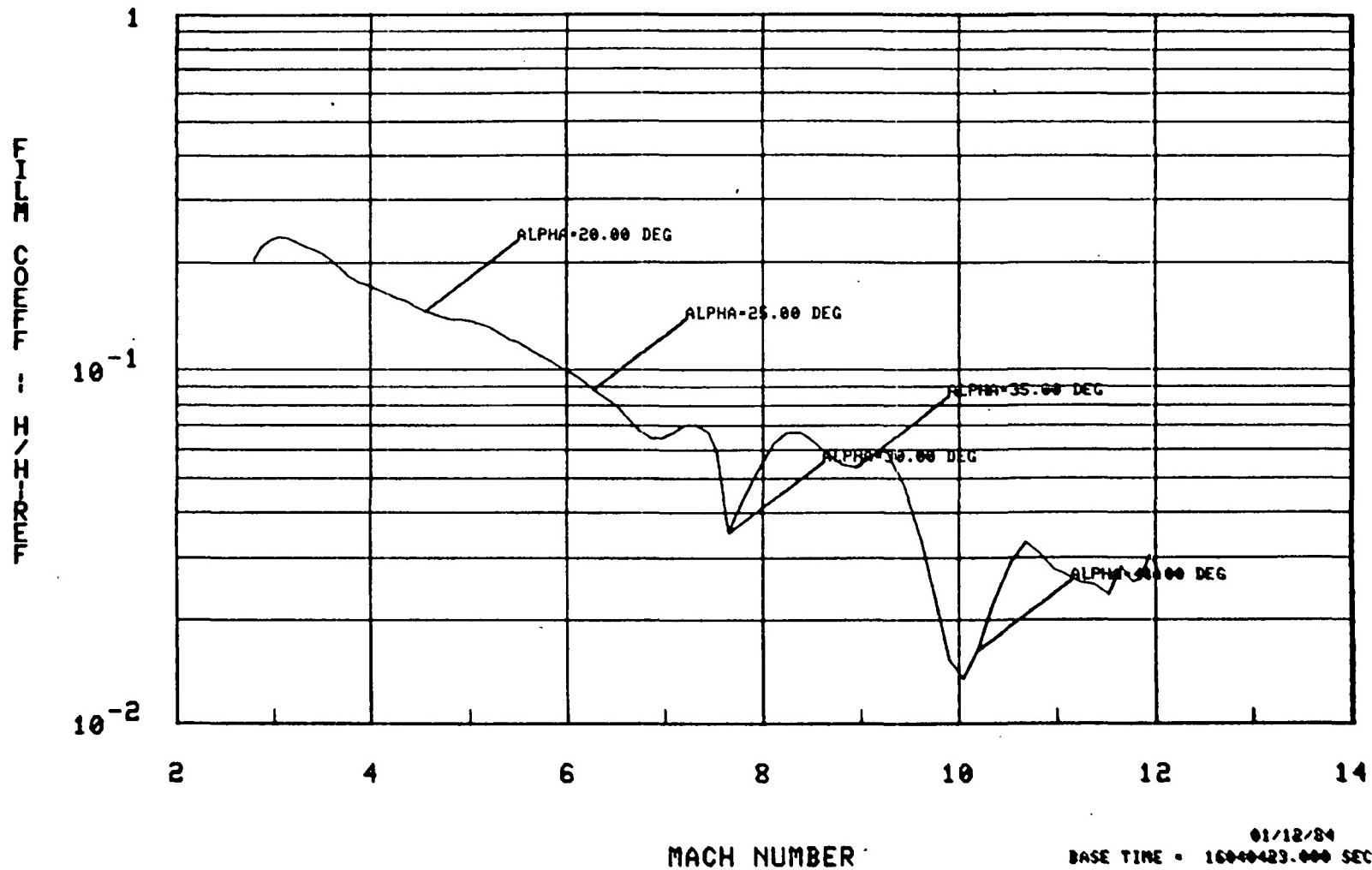
MACH NUMBER

01/11/84
BASE TIME - 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

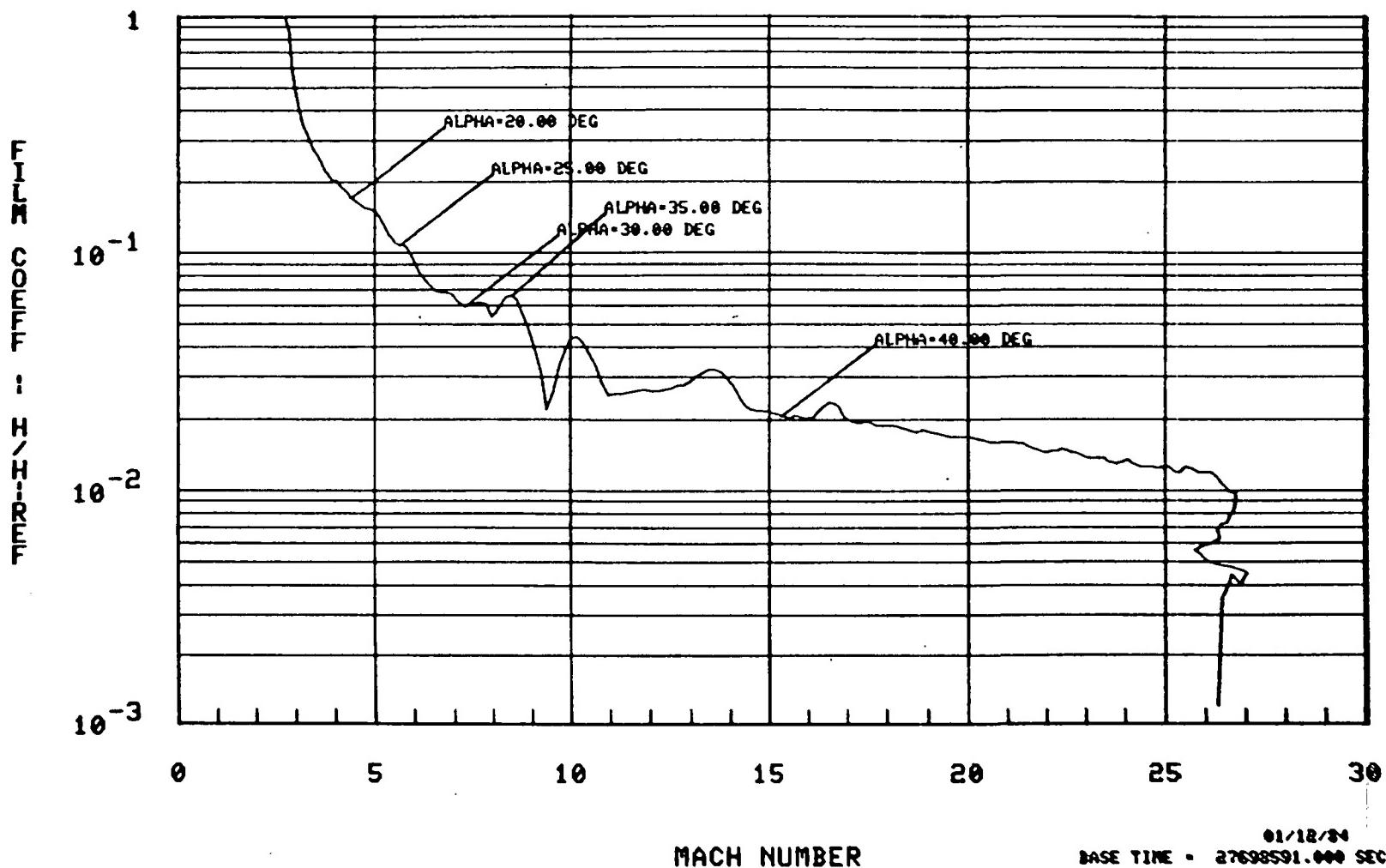
U0779899A/H-REF 965-1360 SEC

B-159



STS-5 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

U07T9899A/H-REF 150-1430 SEC



STS-1 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

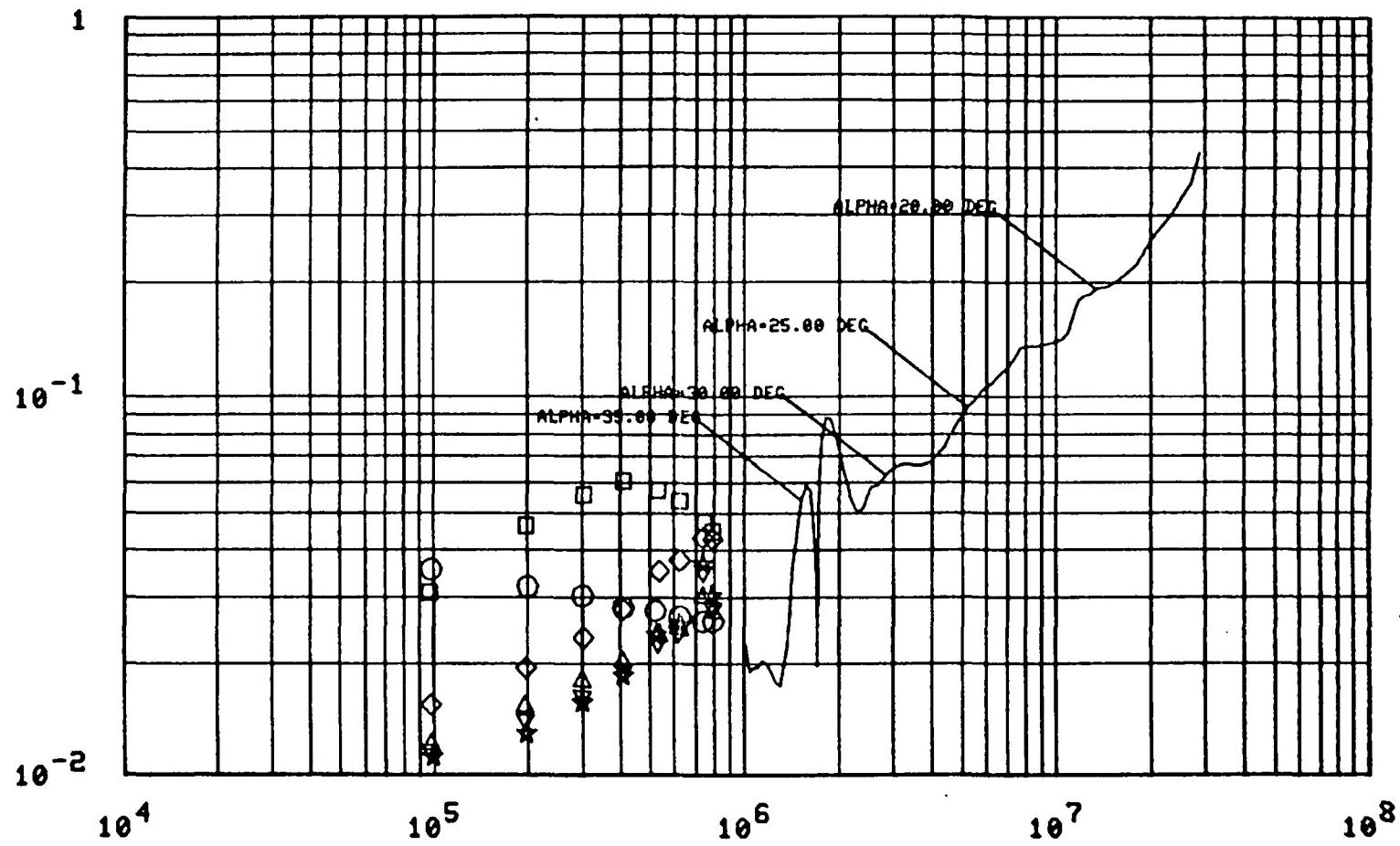


OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9899A/H-REF 1065-1500 SEC

FILM COEFFICIENT H/H_{REF}

8161



REYNOLDS NUMBER (N_s)

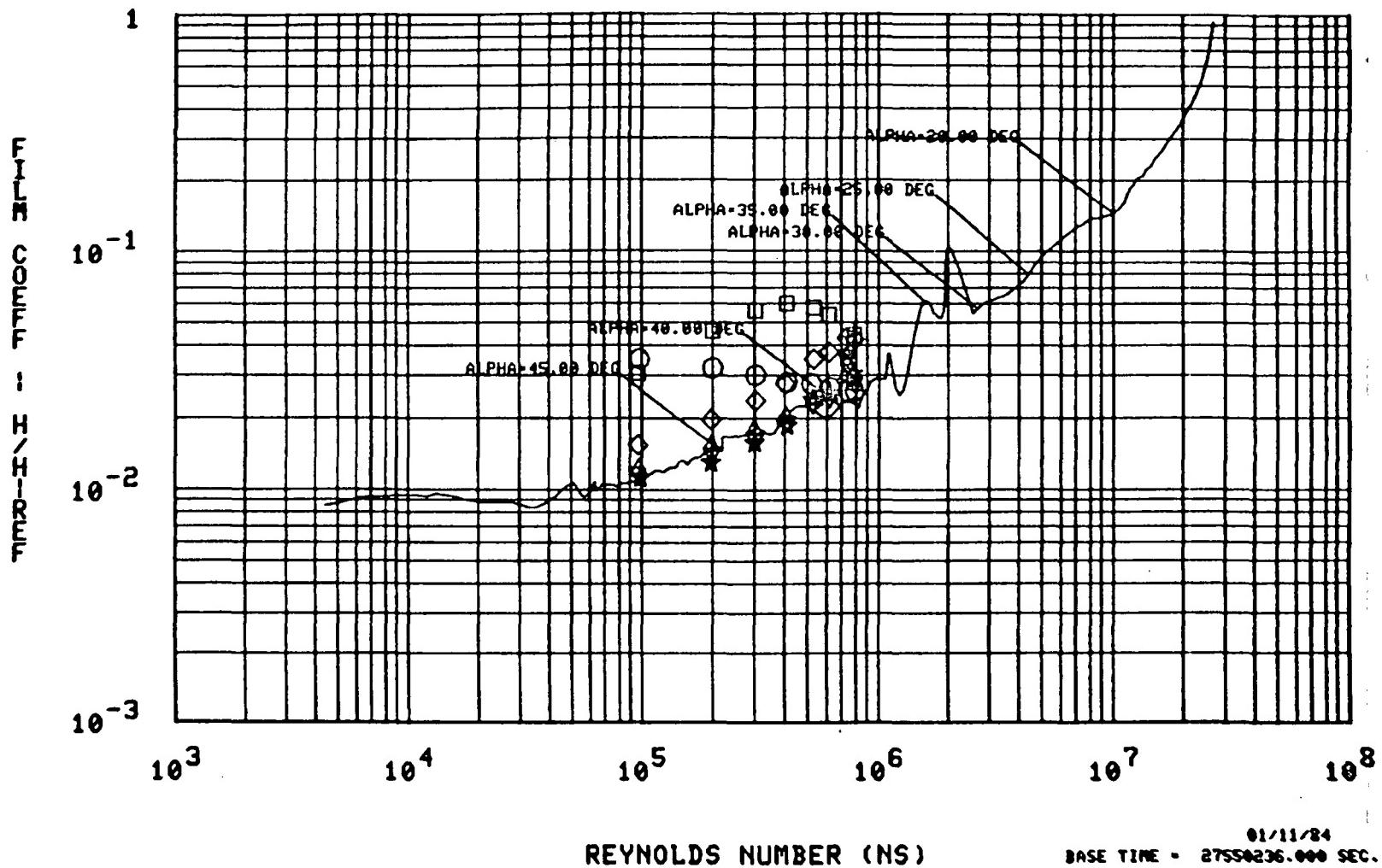
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9899A/H-REF 200-1530 SEC

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B-162

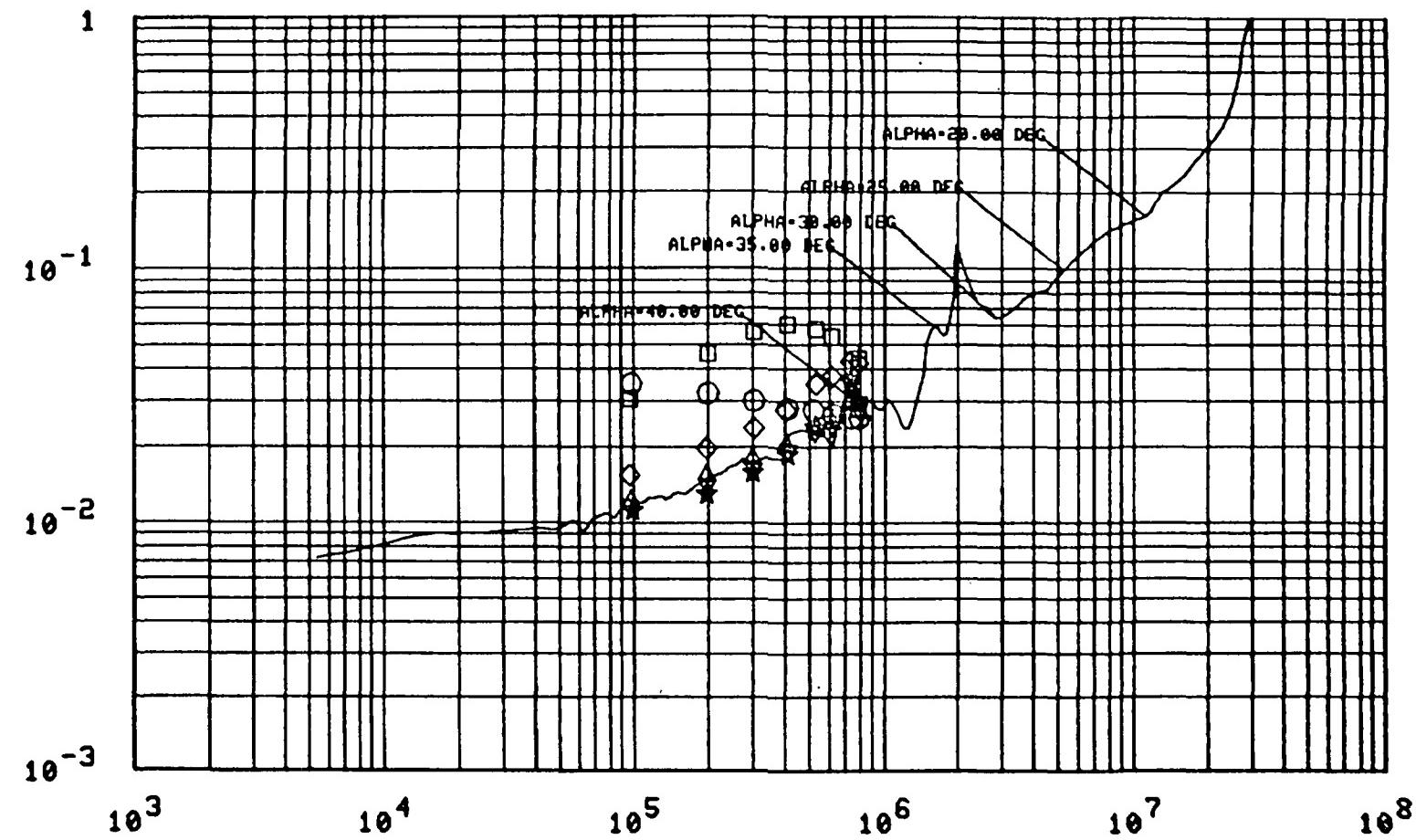
REYNOLDS NUMBER (NS)

01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9899A/H-REF 200-1440 SEC



LINE COULD - H/H-REF

B-163

REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.000 SEC.

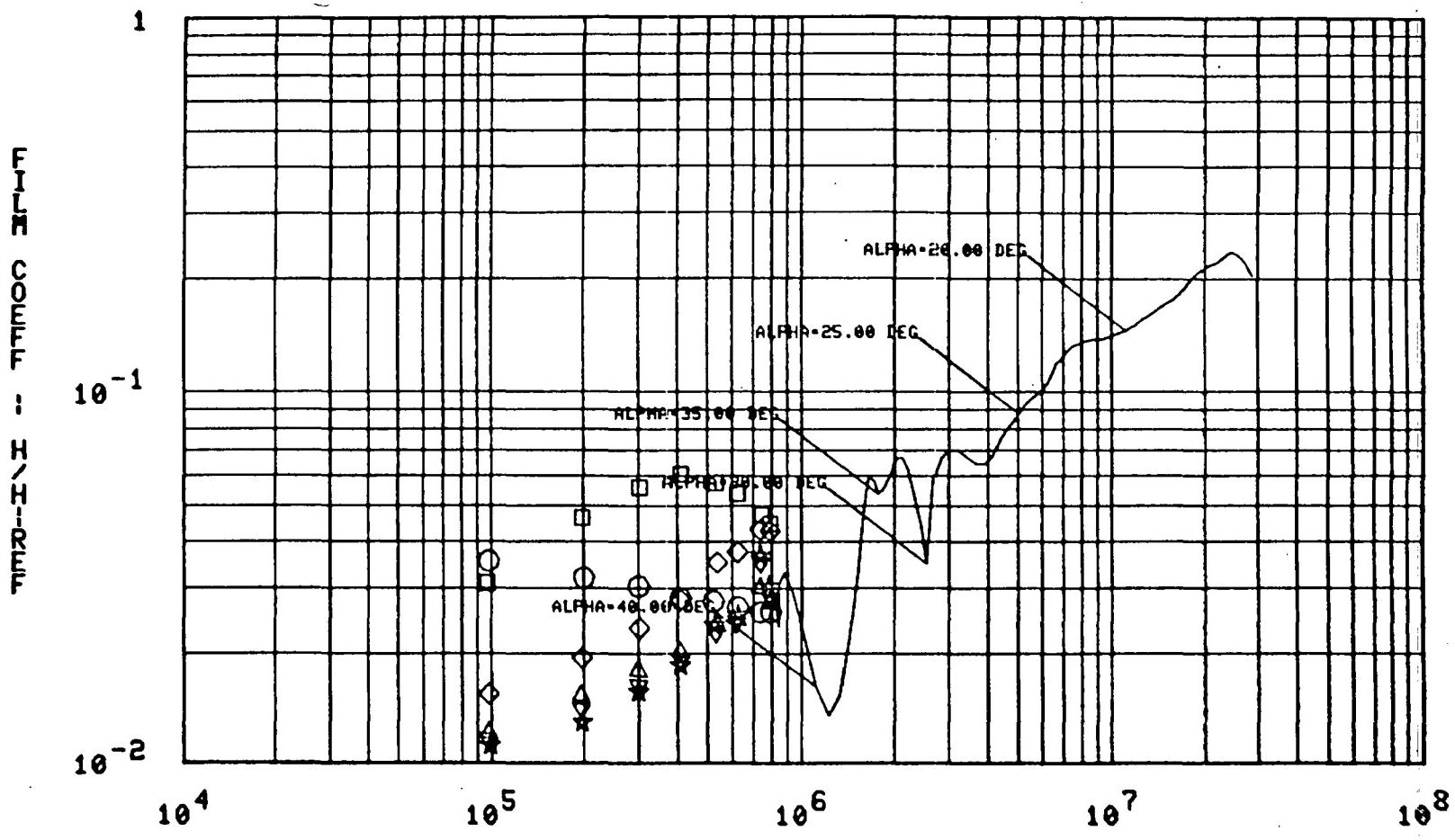
STS-4 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

○ □ △ ▲ ▽ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9899A/H-REF 965-1360 SEC

B-164



REYNOLDS NUMBER (NS)

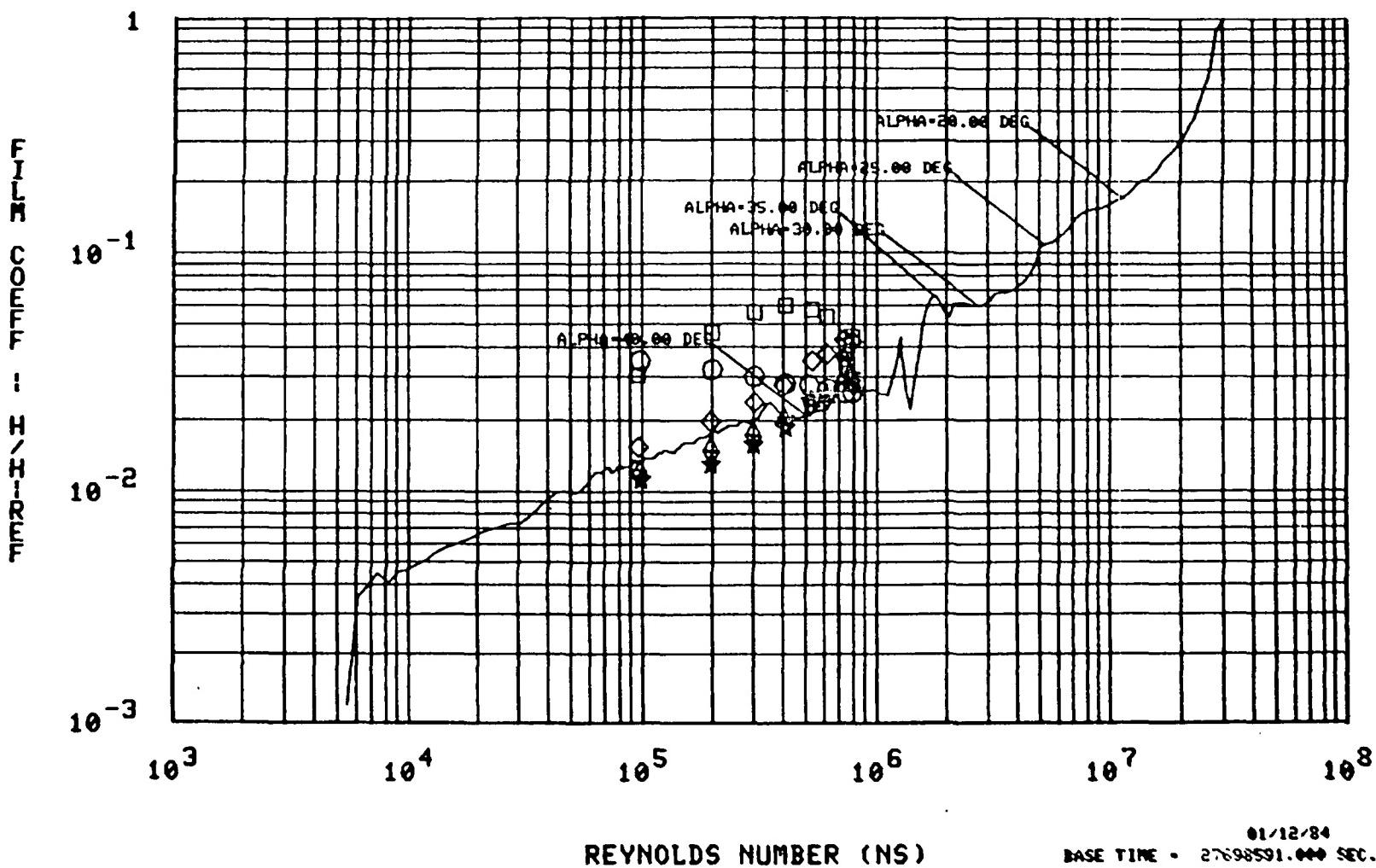
01/12/84
 BASE TIME = 1604423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

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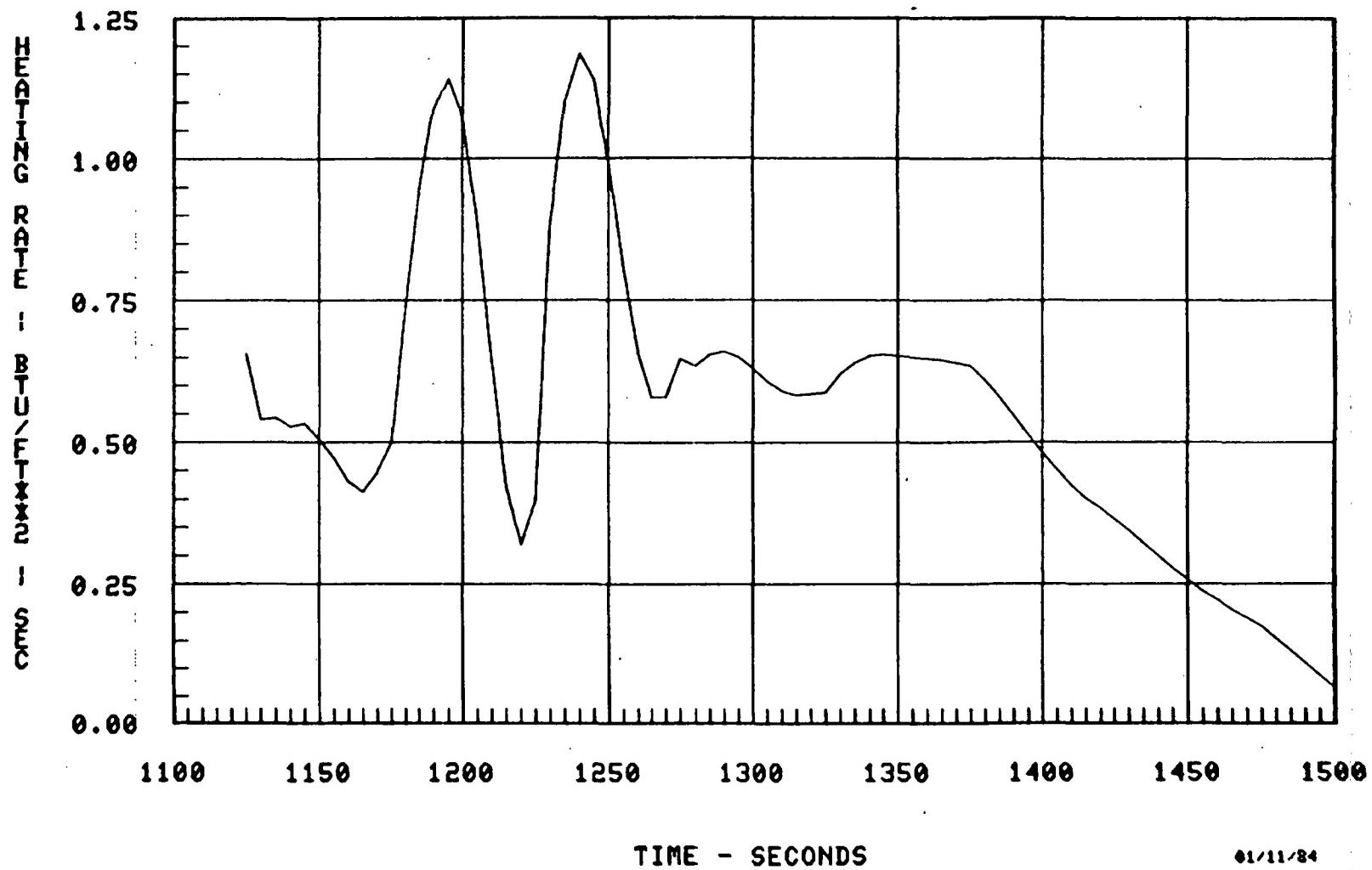
OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9899A/H-REF 150-1430 SEC



STS-1 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

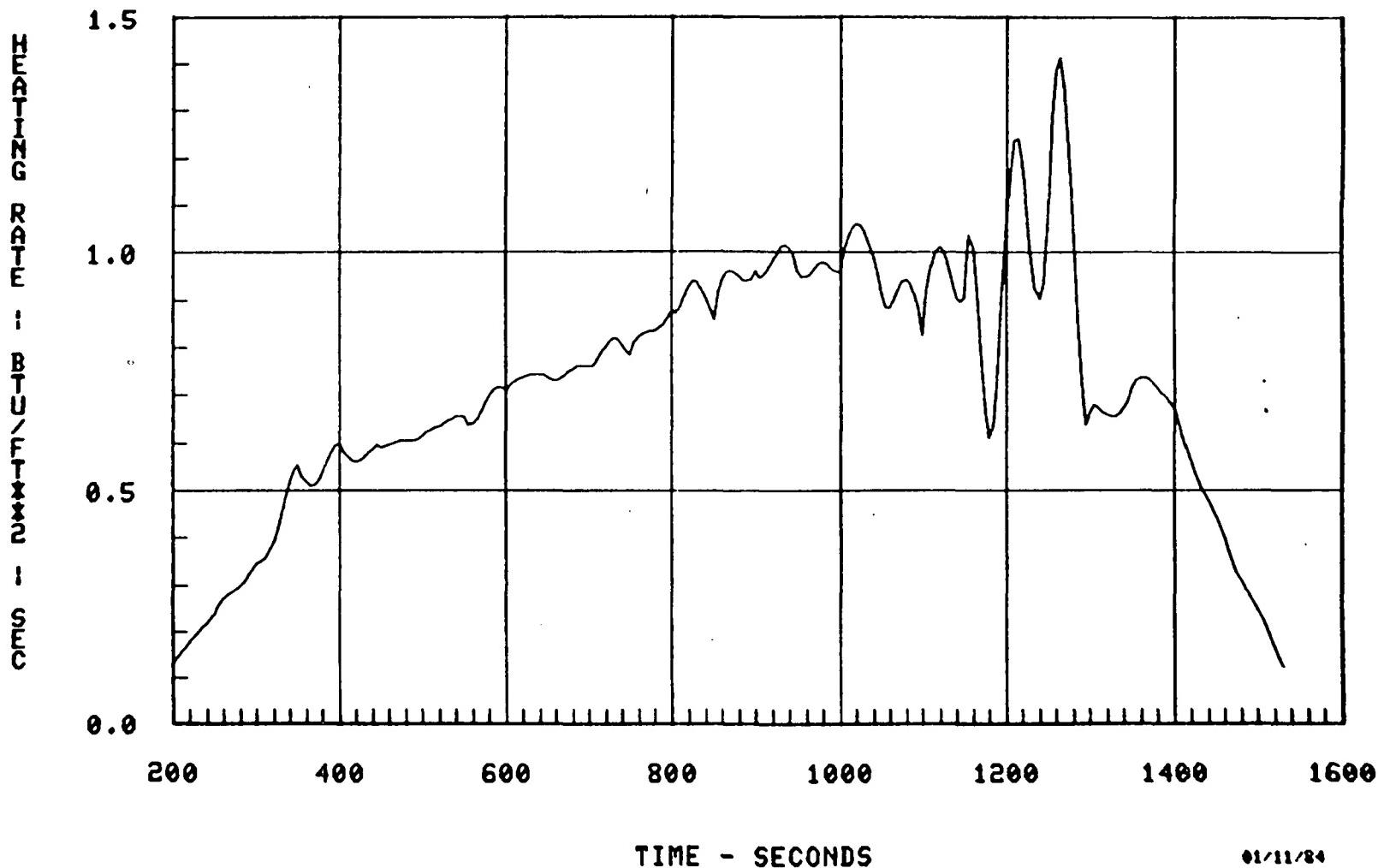
U07T9899A



01/11/84

STS-2 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

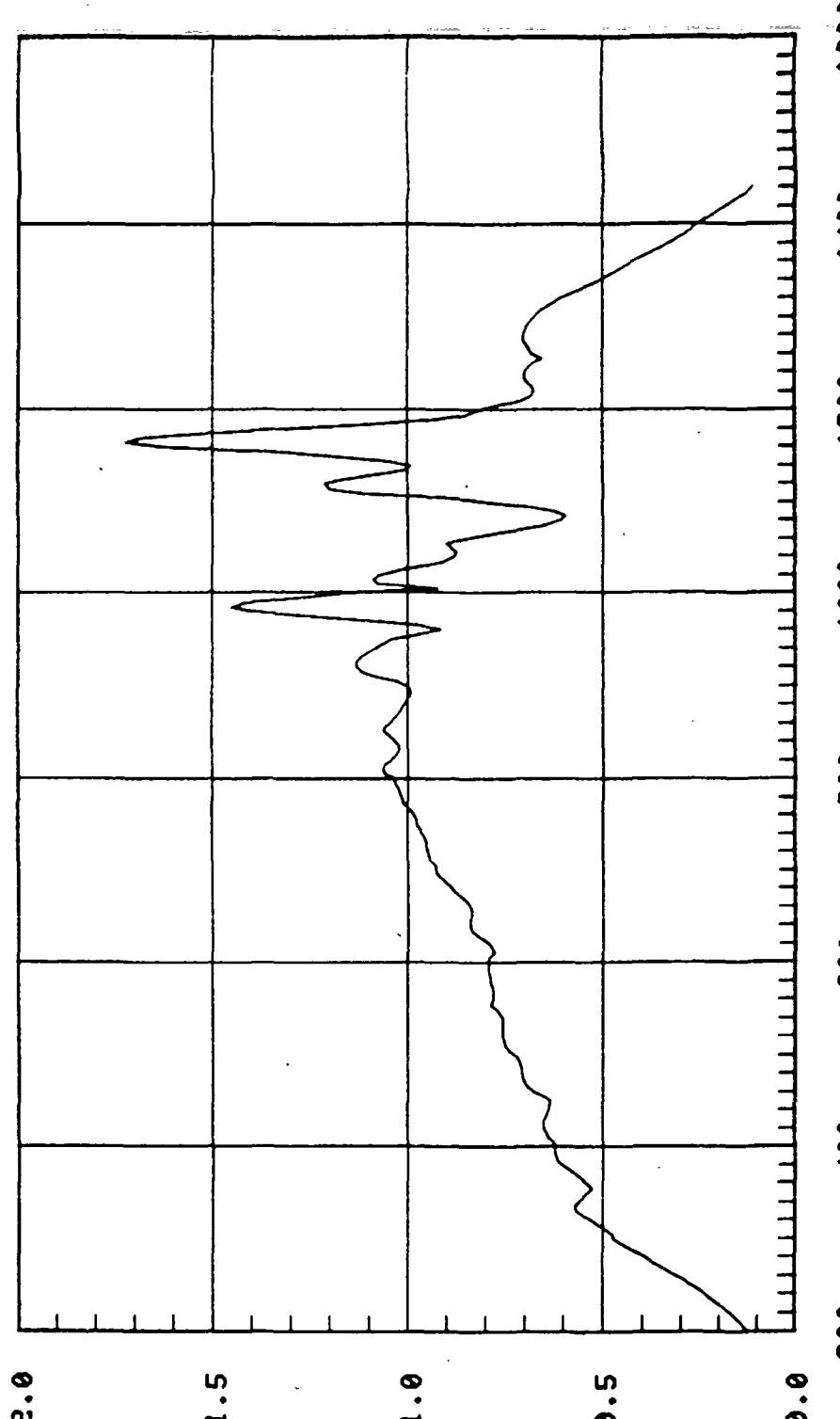
U07T9899A



01/11/84

STS-3 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

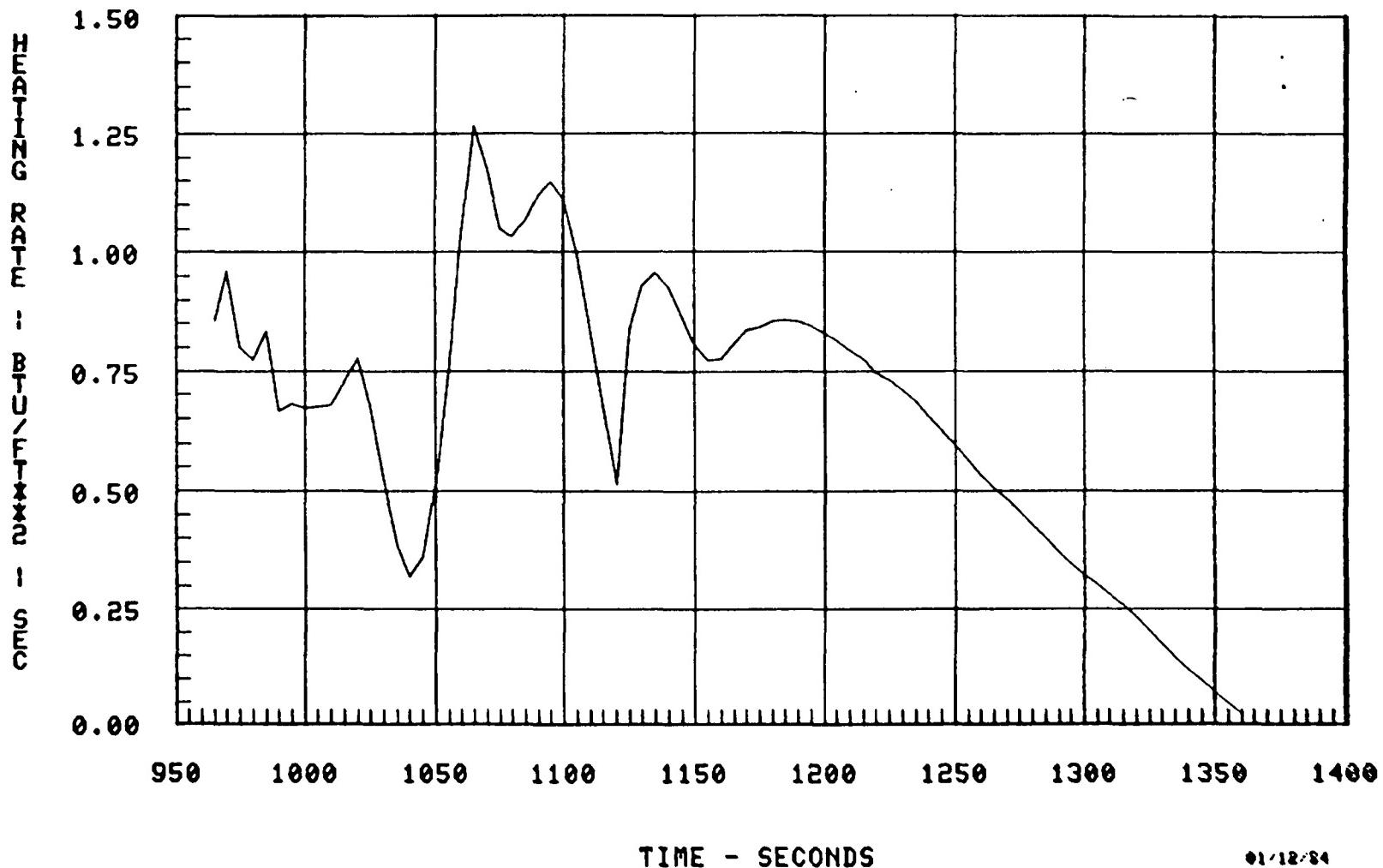
V07T9899A



HIGHING RATE -- RATE/UNIT -- SEC

STS-4 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

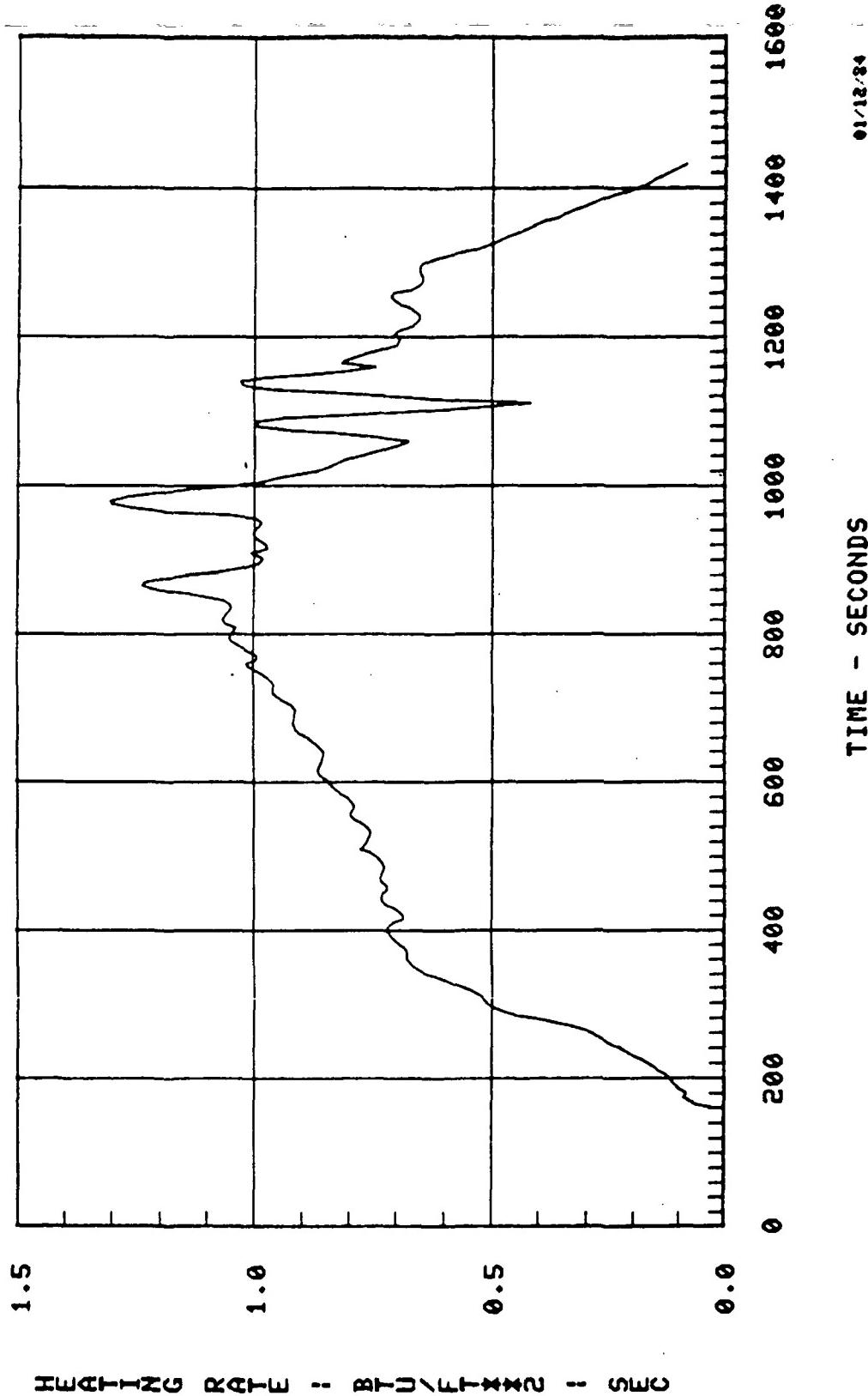
U07T9899A



01/12/84

STS-5 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

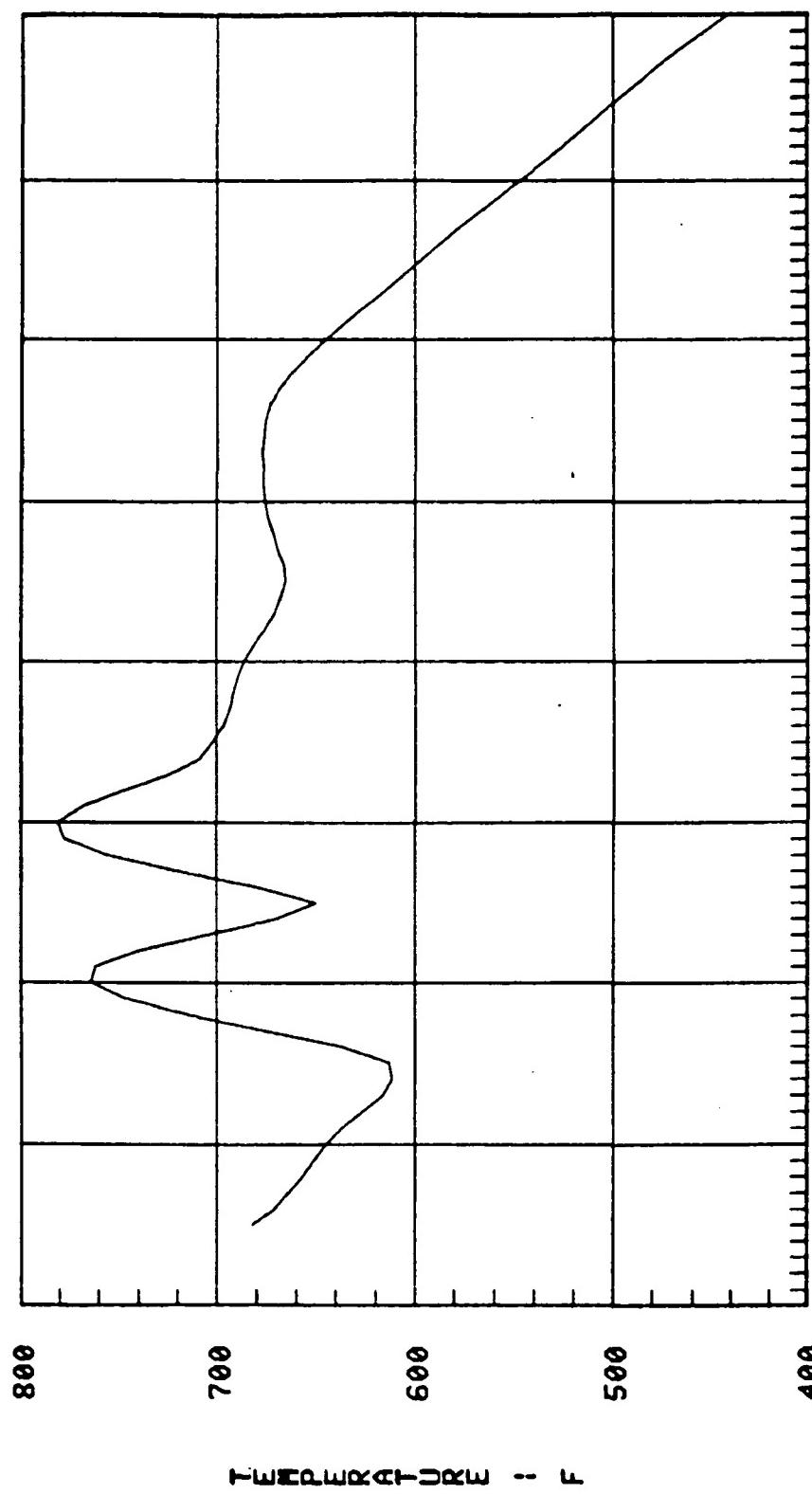
U0779899a



B-170

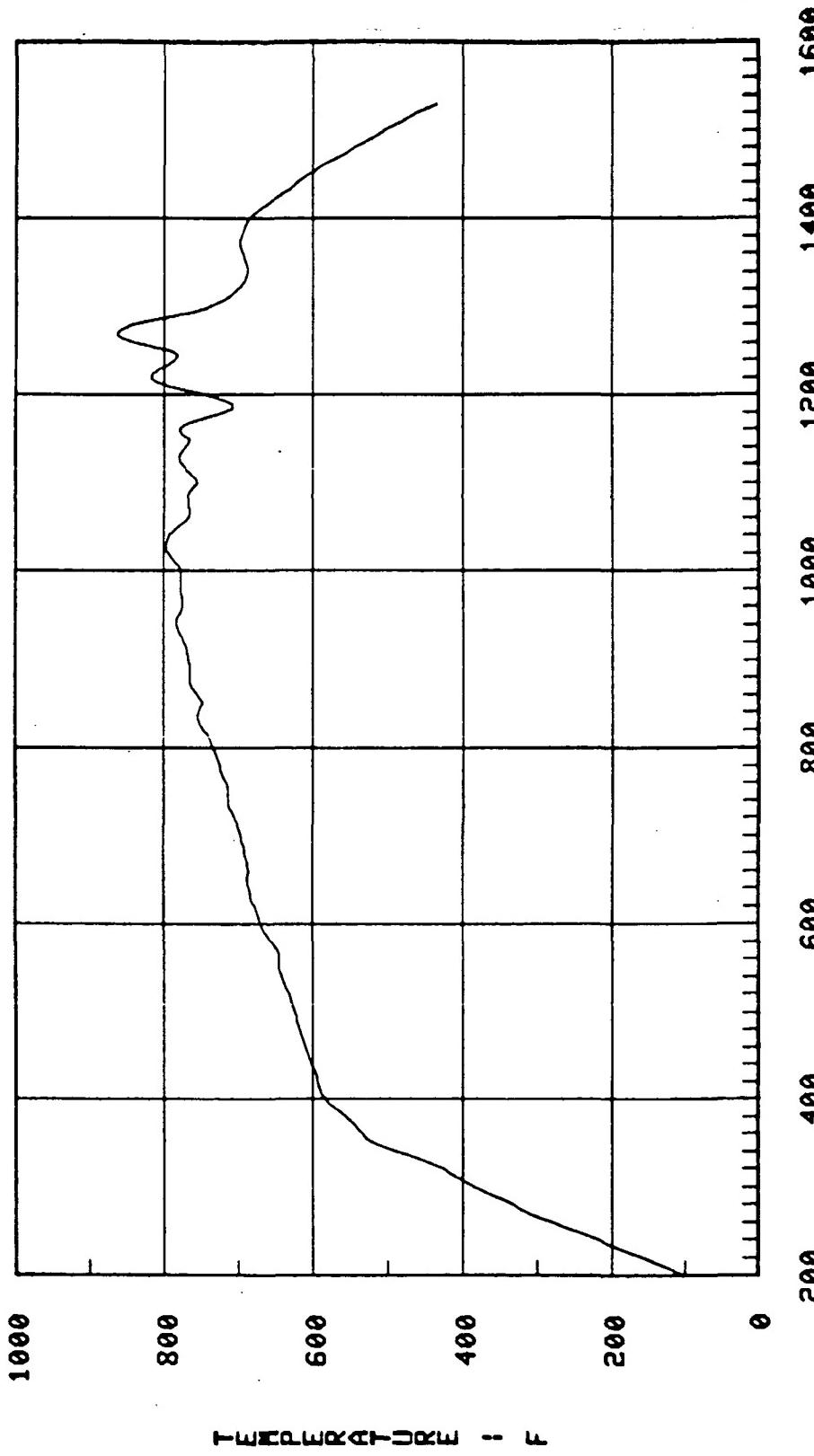
STS-1 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

U0779899A



STS-2 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

U67798899A



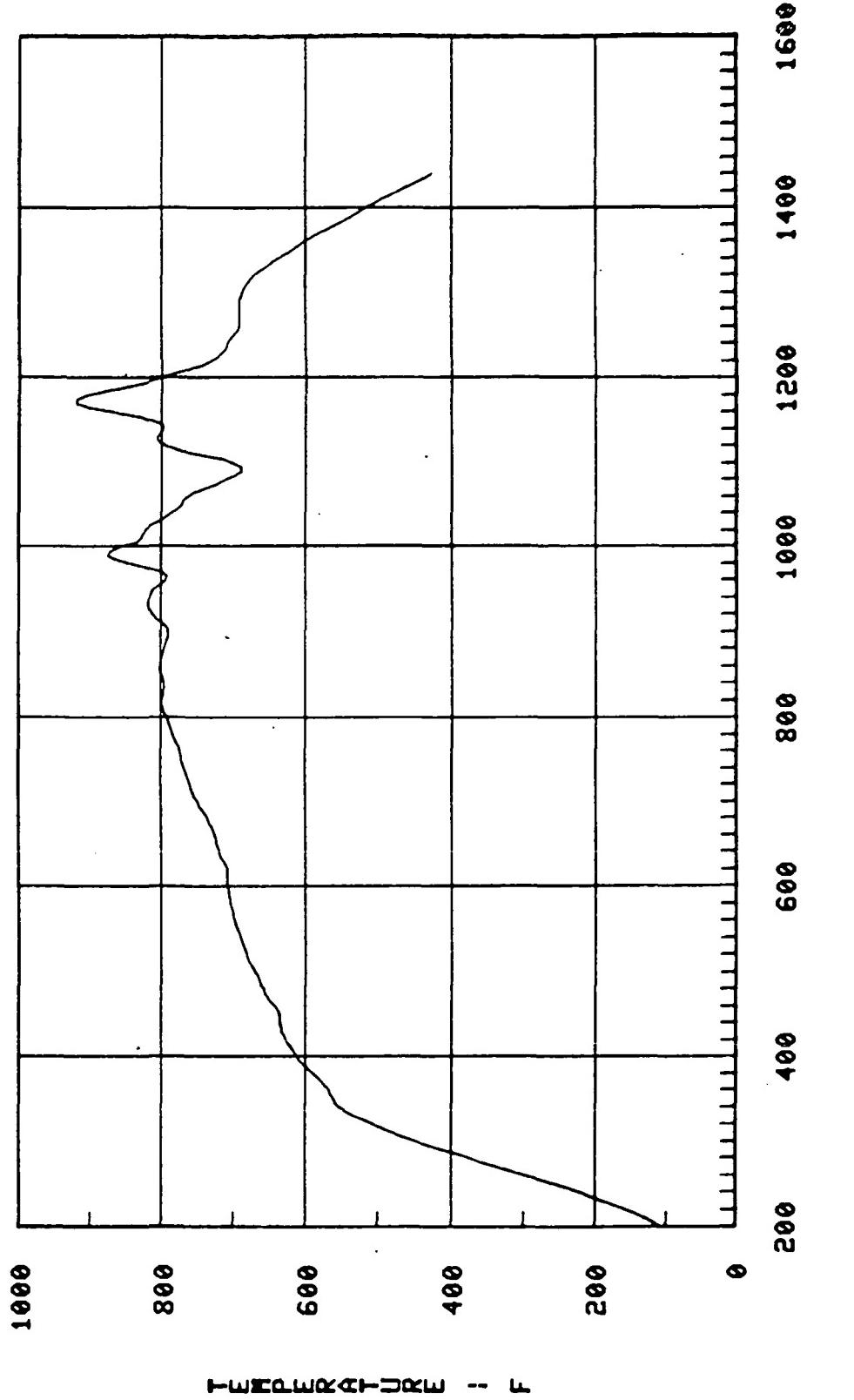
TEMPERATURE -- F

B-172

01/11/84

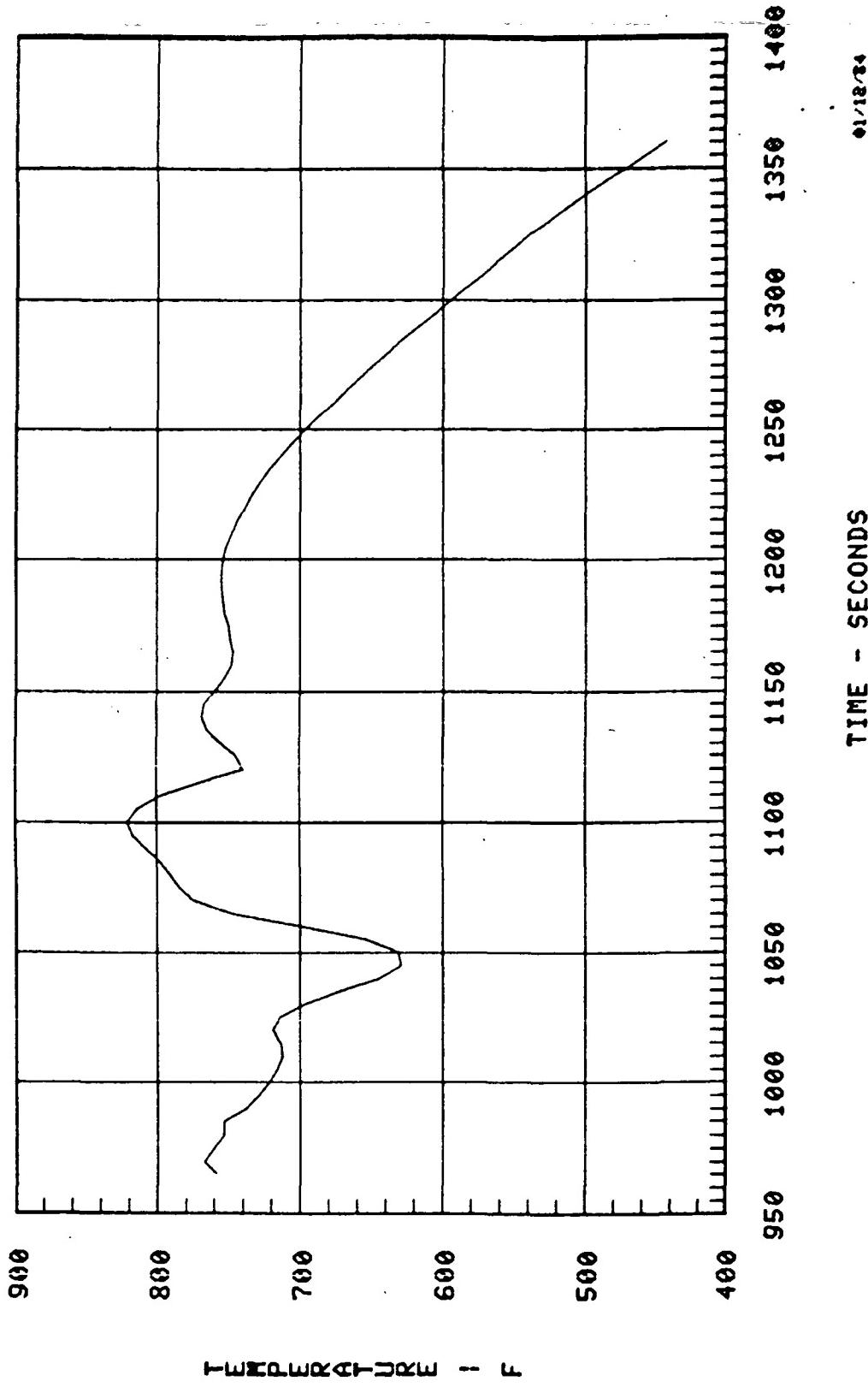
STS-3 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

U8779899A



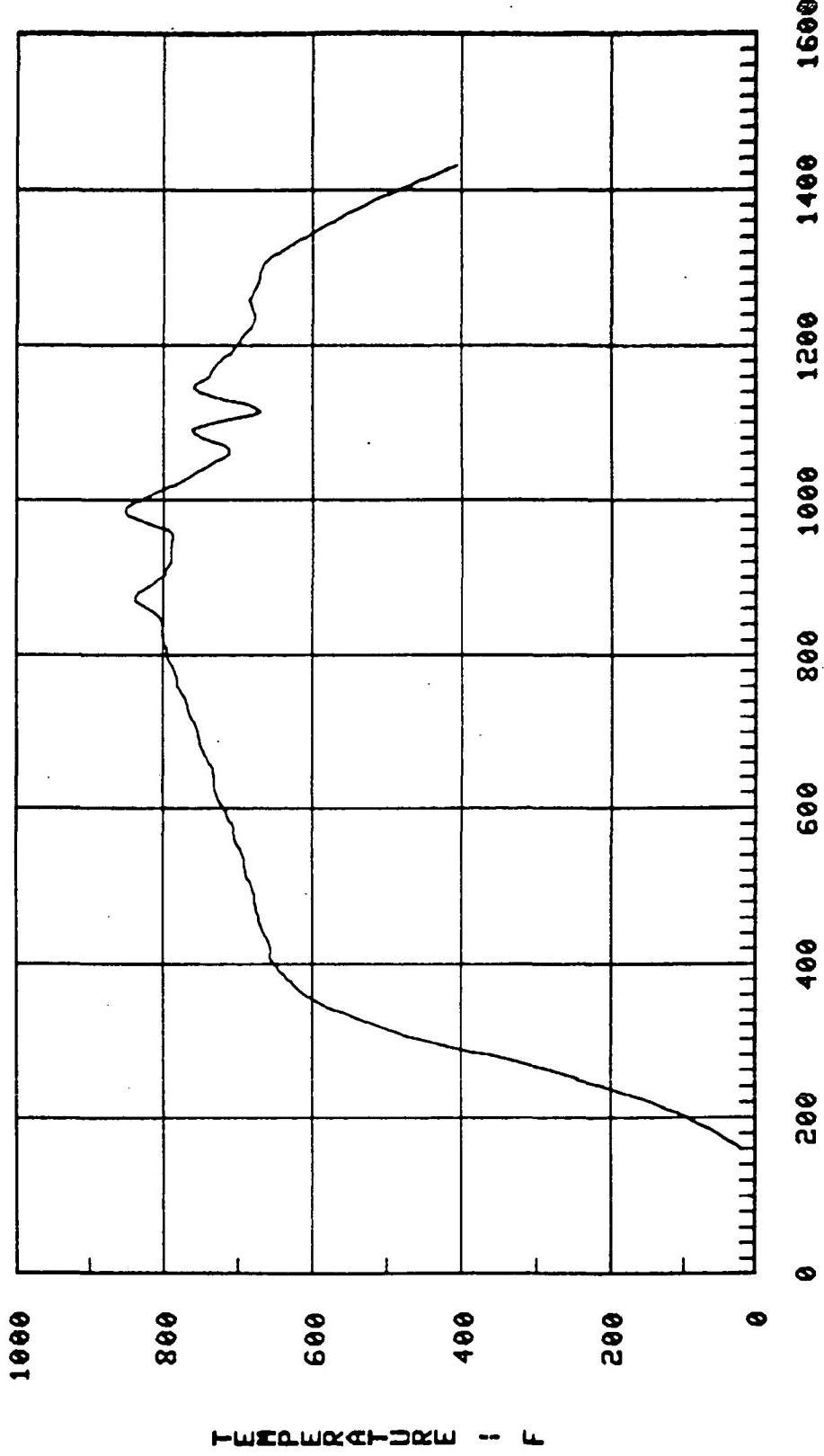
STS-4 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

00779899A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.45) Z=400

V07T9899A

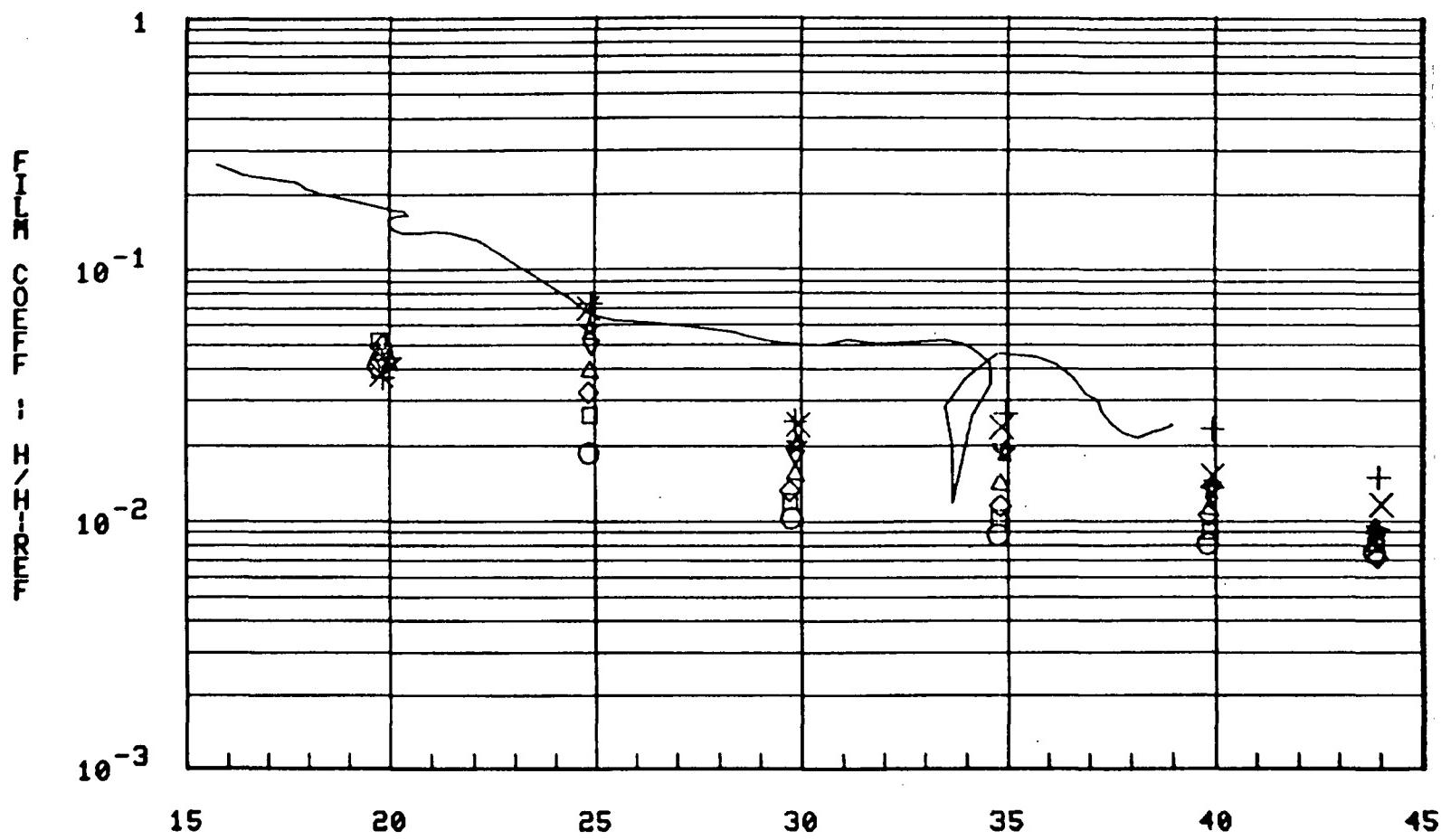


STS-1 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9901A/H-REF 1065-1500 SEC

O ◊ ▲ △ ★ + X



B-176

ANGLE-OF-ATTACK - DEG

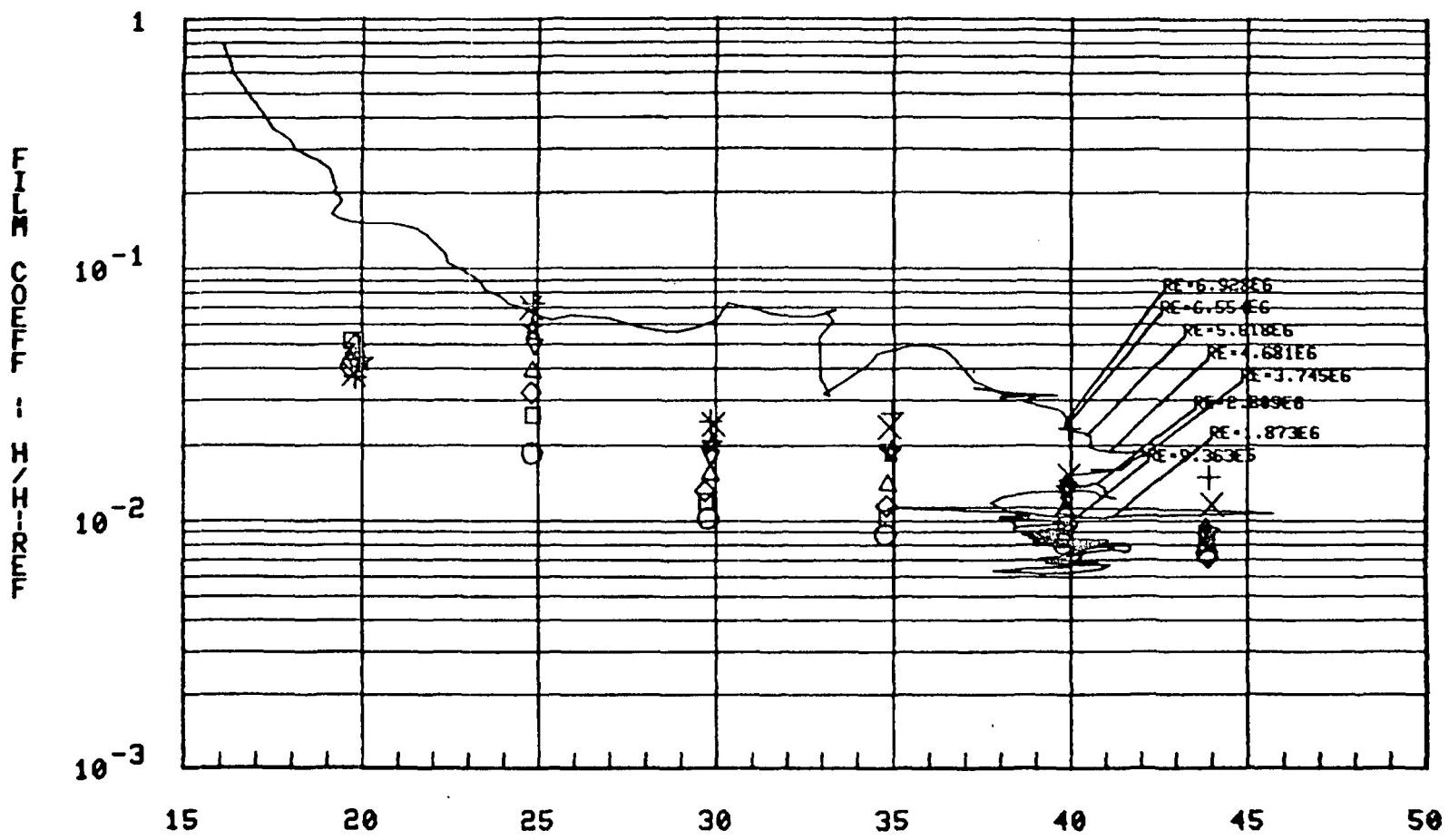
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

○ □ ◇ △ ▲ ★ ✕

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9901A/H-REF 200-1530 SEC



B-177

ANGLE-OF-ATTACK - DEG

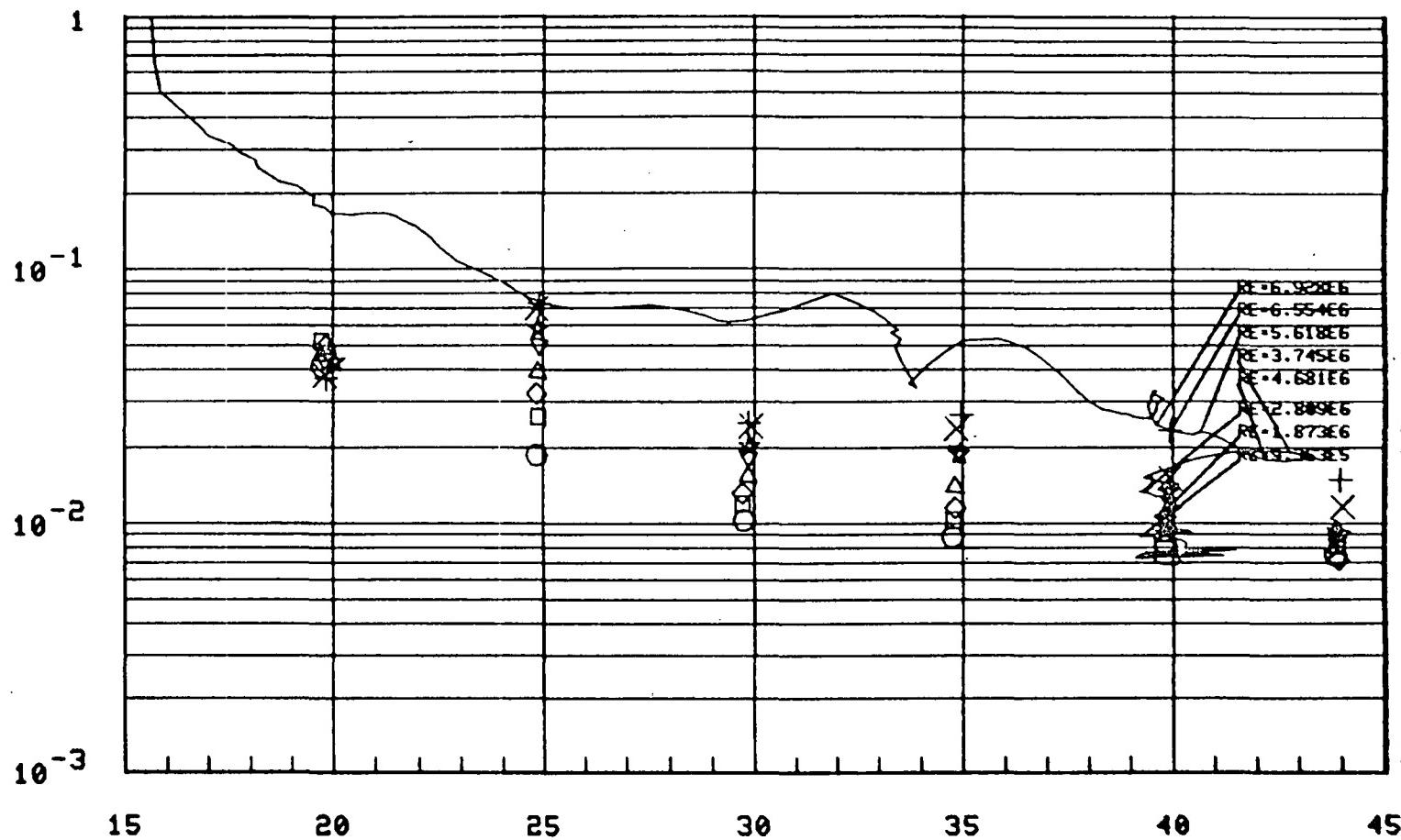
01/11/84
 BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9901A/H-REF 200-1440 SEC

○□◇△★+ X



B-178

ANGLE-OF-ATTACK - DEG

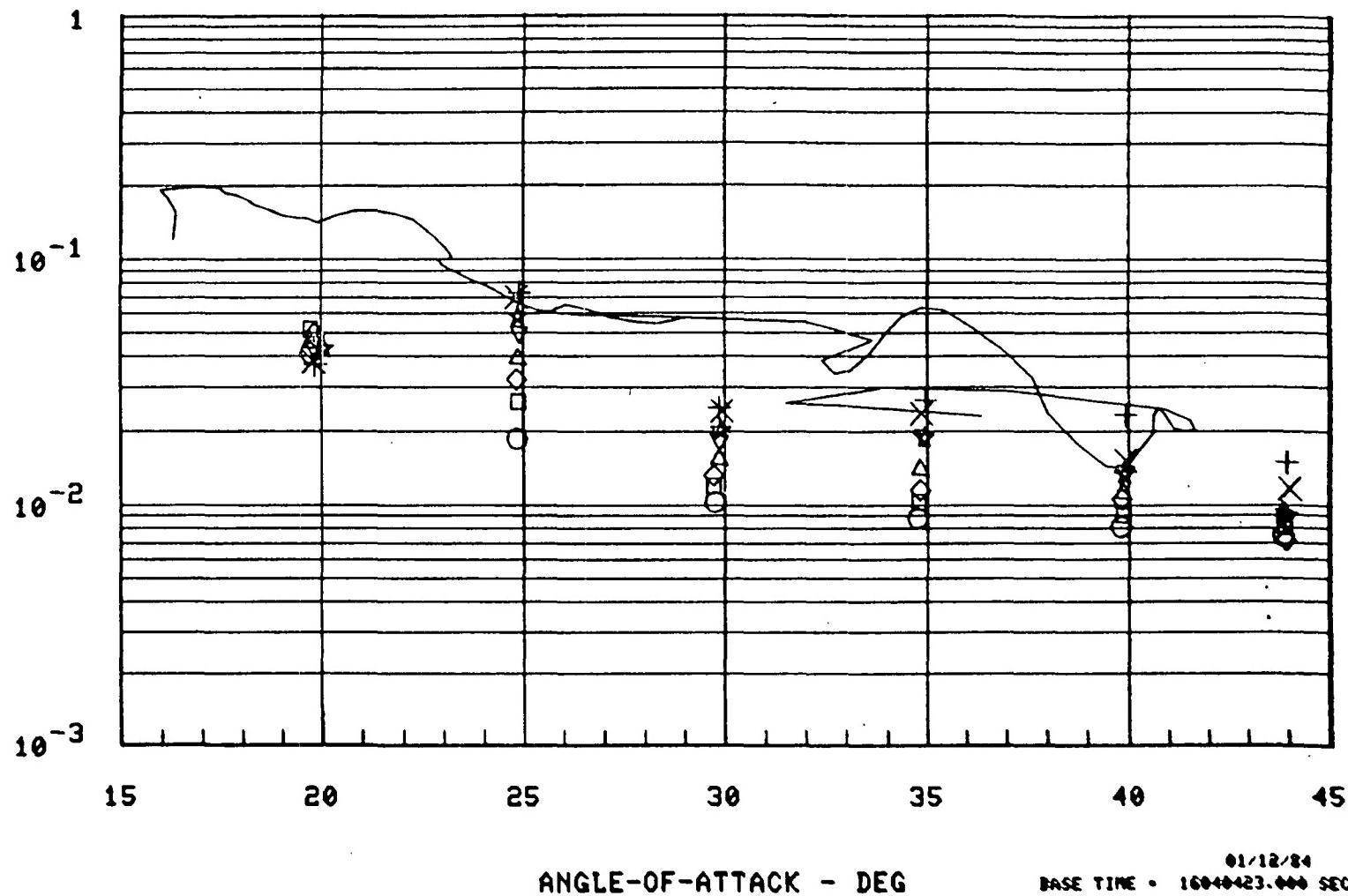
01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

OH74 0.0175 SCALE RE • 0.5 E06
 OH74 0.0175 SCALE RE • 1.0 E06
 OH74 0.0175 SCALE RE • 1.5 E06
 OH74 0.0175 SCALE RE • 2.0 E06
 OH74 0.0175 SCALE RE • 2.5 E06
 OH74 0.0175 SCALE RE • 3.0 E06
 OH74 0.0175 SCALE RE • 3.5 E06
 OH74 0.0175 SCALE RE • 3.7 E06

U07T9901A/H-REF 965-1360 SEC

O△◇▷★+X



B-179

ANGLE-OF-ATTACK - DEG

01/12/84

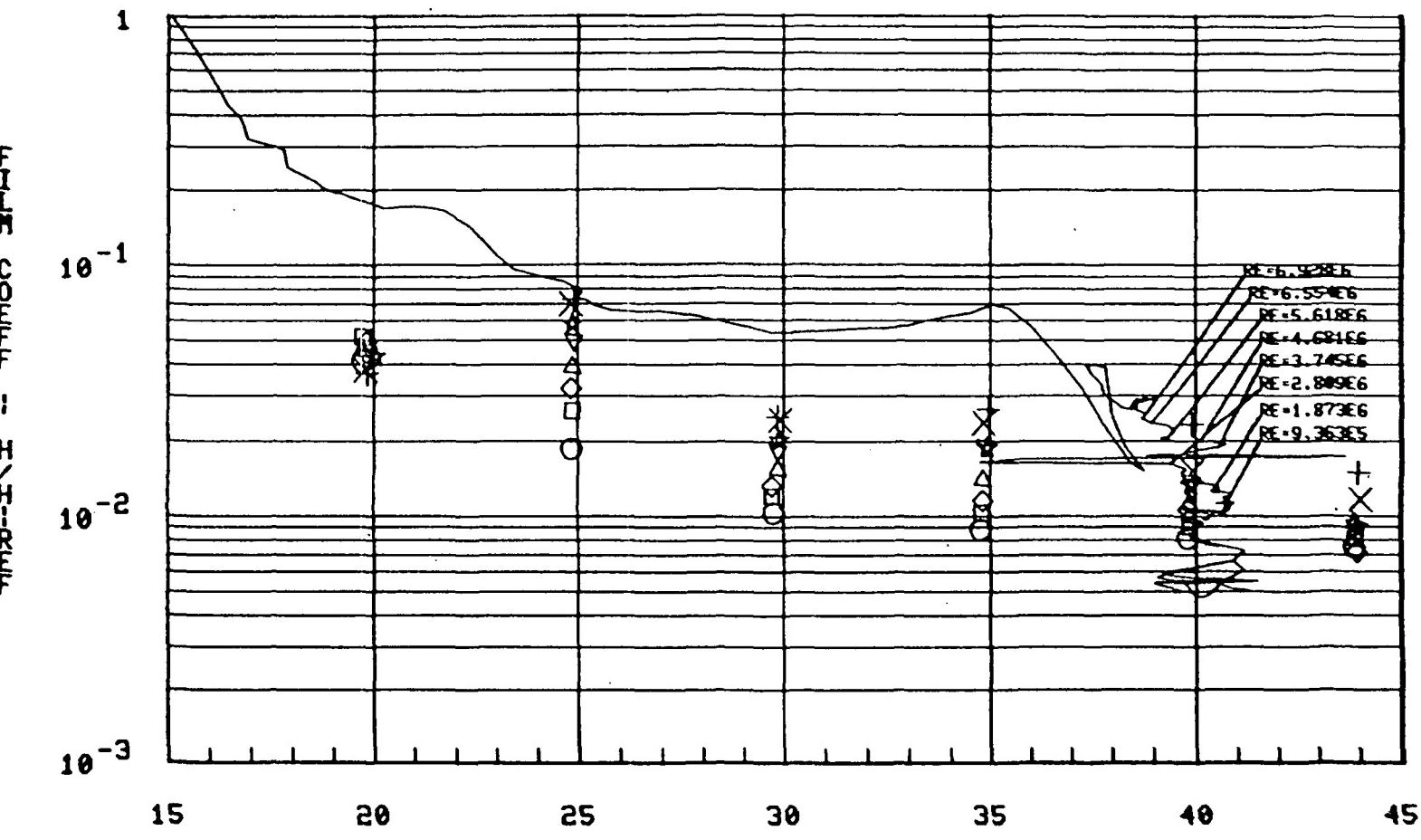
BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9901A/H-REF 150-1430 SEC

O ◇ ▲ △ ★ + X



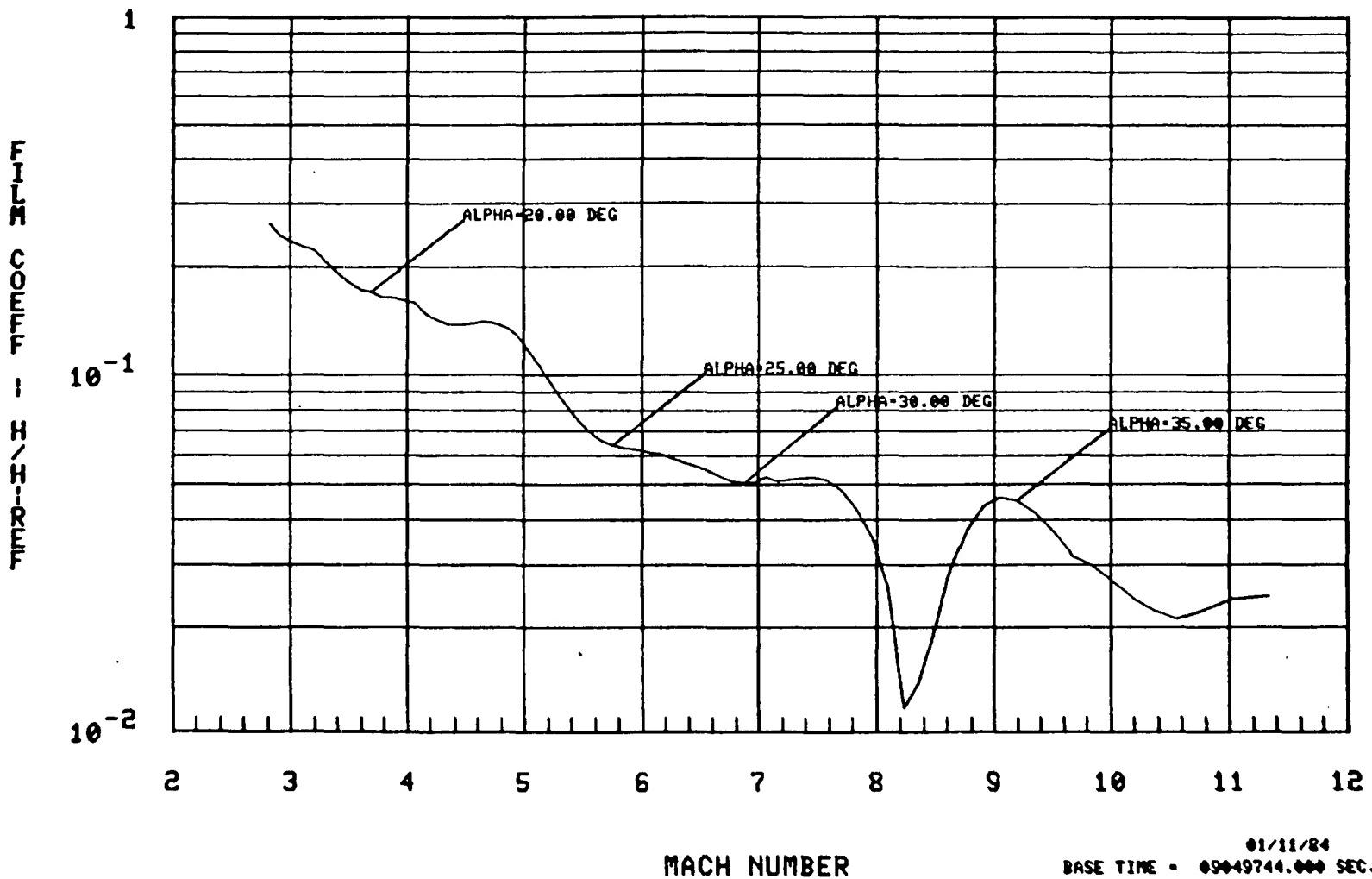
B-180

ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME • 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

U07T9901A/H-REF 1065-1500 SEC



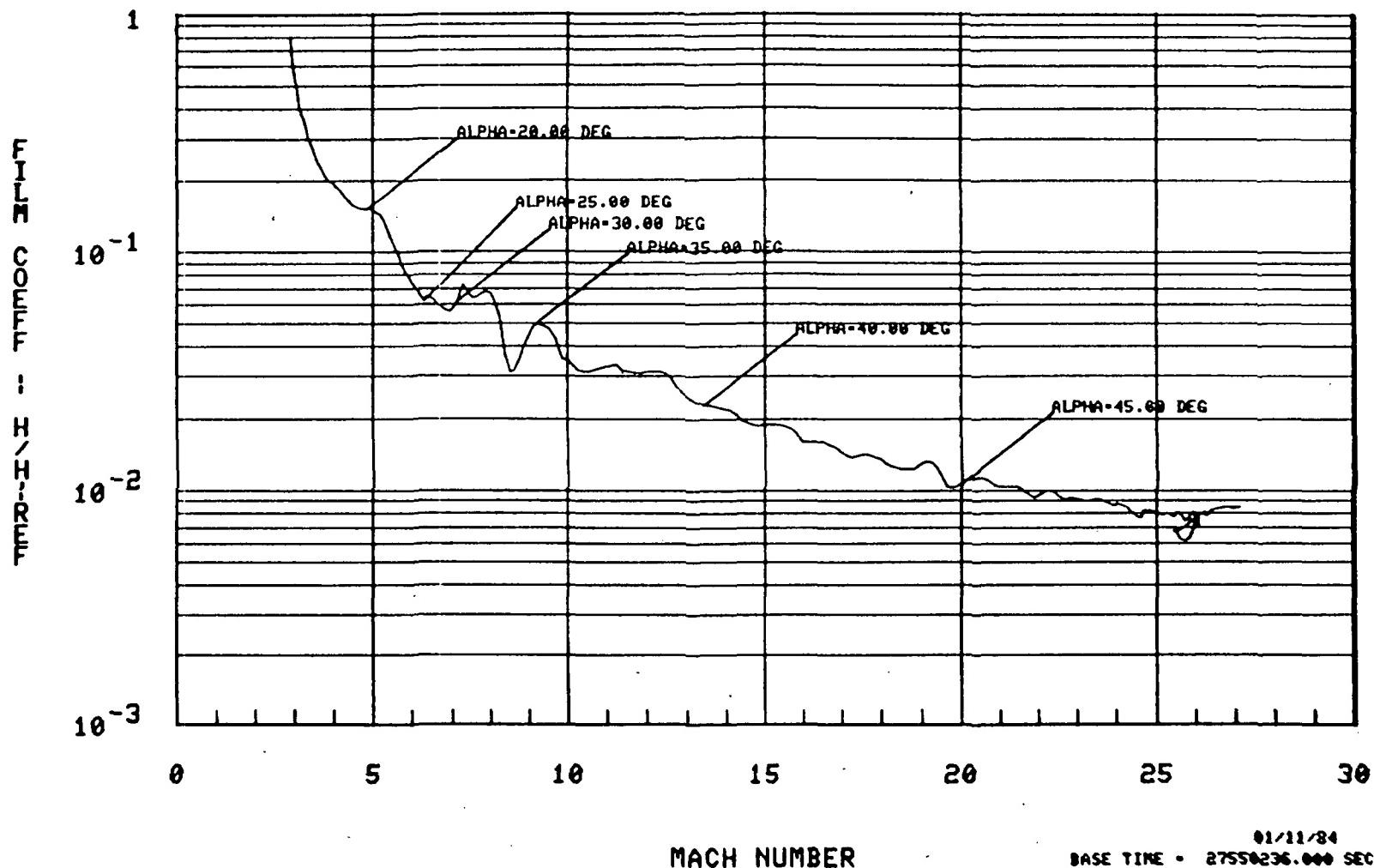
MACH NUMBER

01/11/84

BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

U07T9901A/H-REF 200-1530 SEC

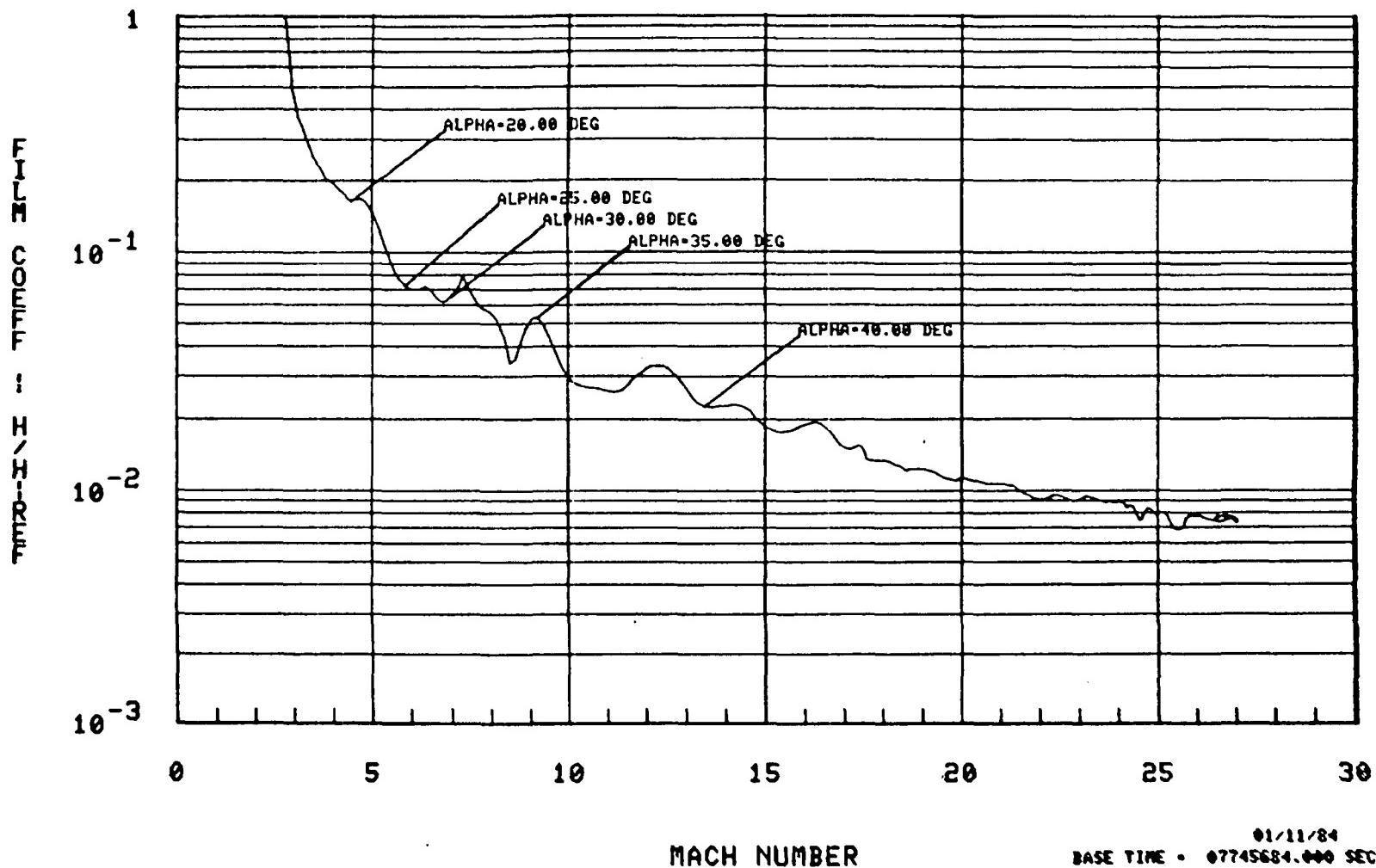


01/11/84

BASE TIME • 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

U07T9901A/H-REF 200-1440 SEC



B-183

MACH NUMBER

01/11/84
BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

00719901A/H-REF 965-1360 SEC

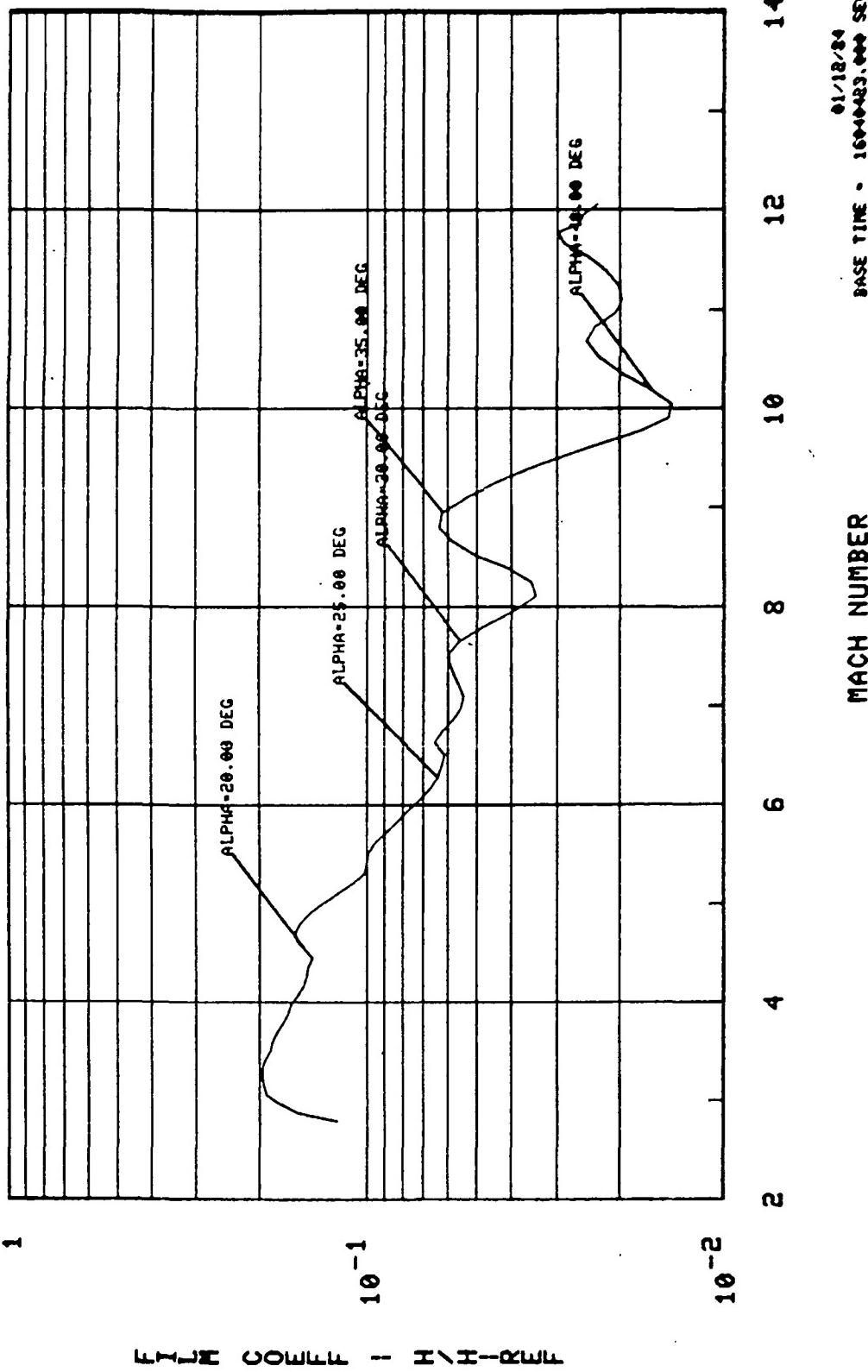
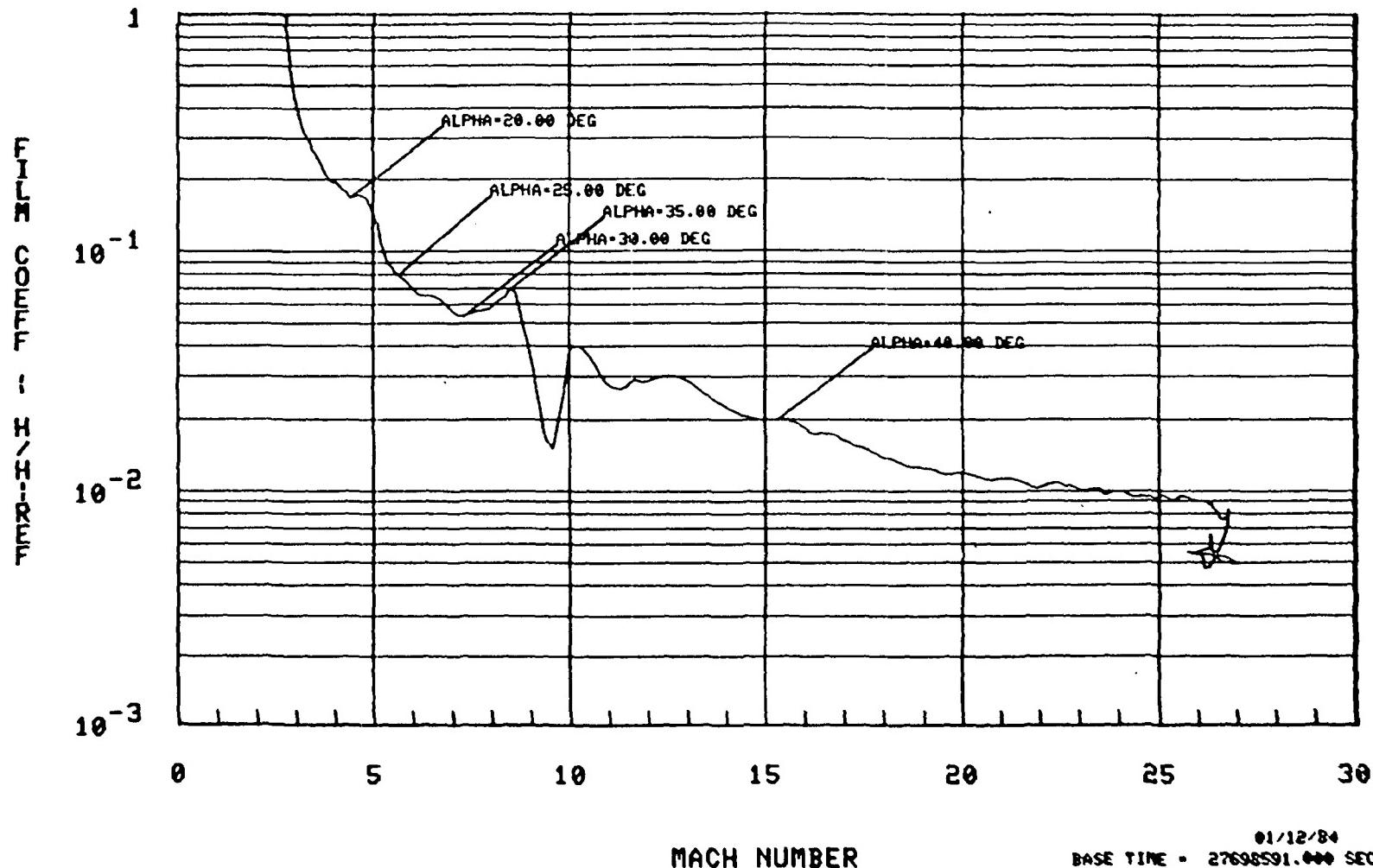


FIGURE COWELL - H/H-DWELL

STS-5 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

U07T9901A/H-REF 150-1430 SEC



B-185

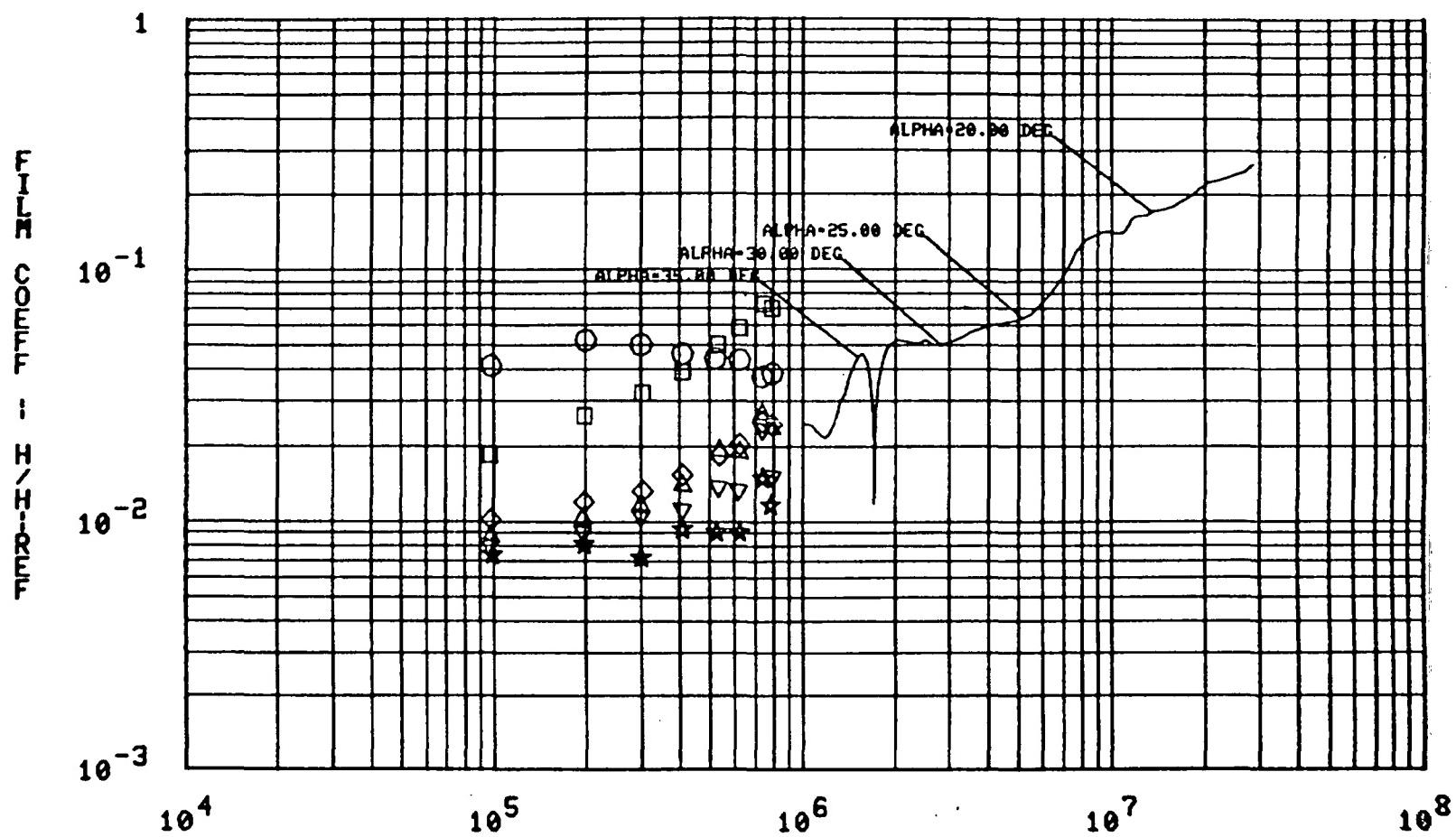
01/12/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400



OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9901A/H-REF 1065-1500 SEC



B-186

REYNOLDS NUMBER (NS)

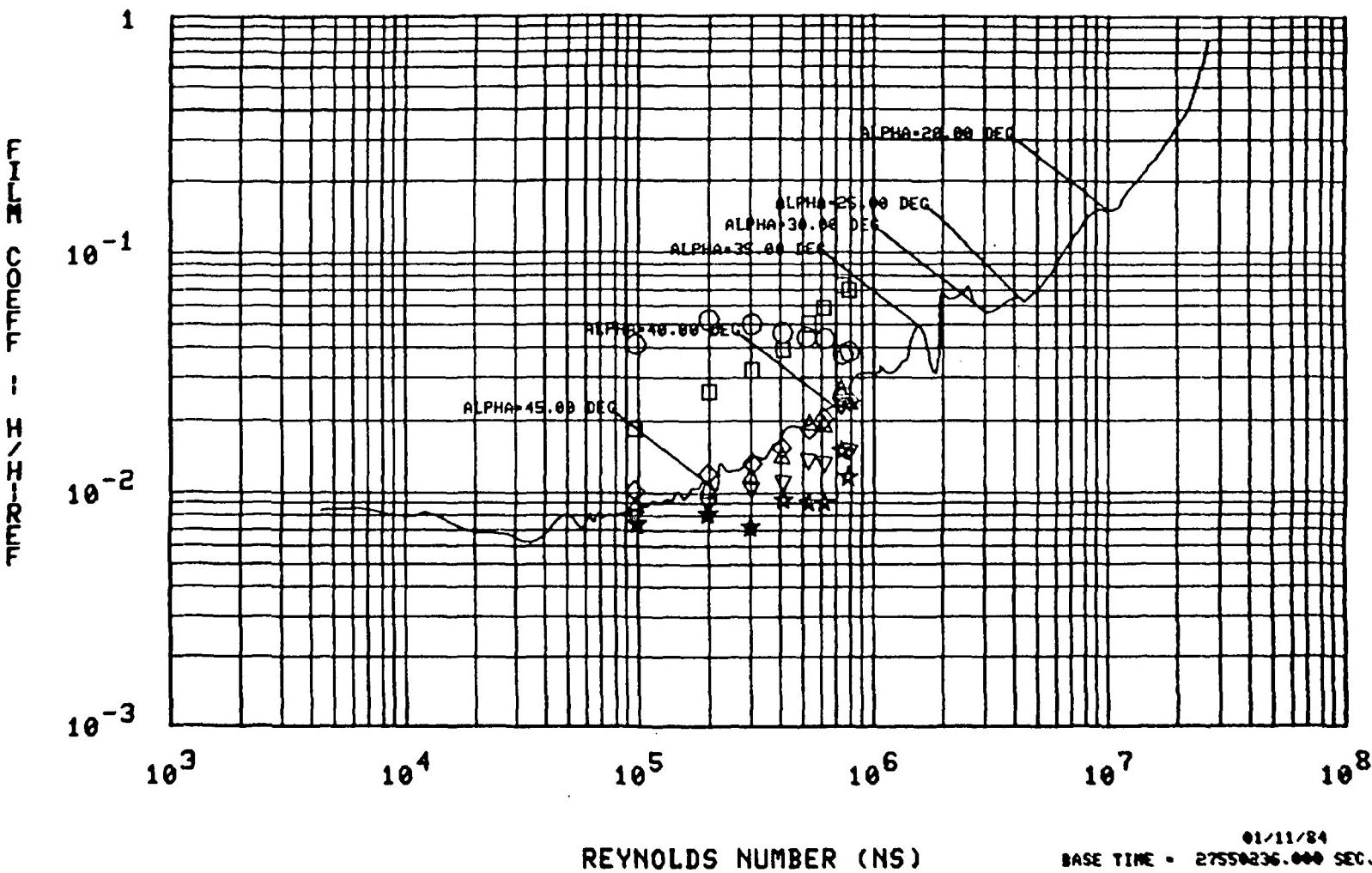
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9901A/H-REF 200-1530 SEC



B-187

01/11/84

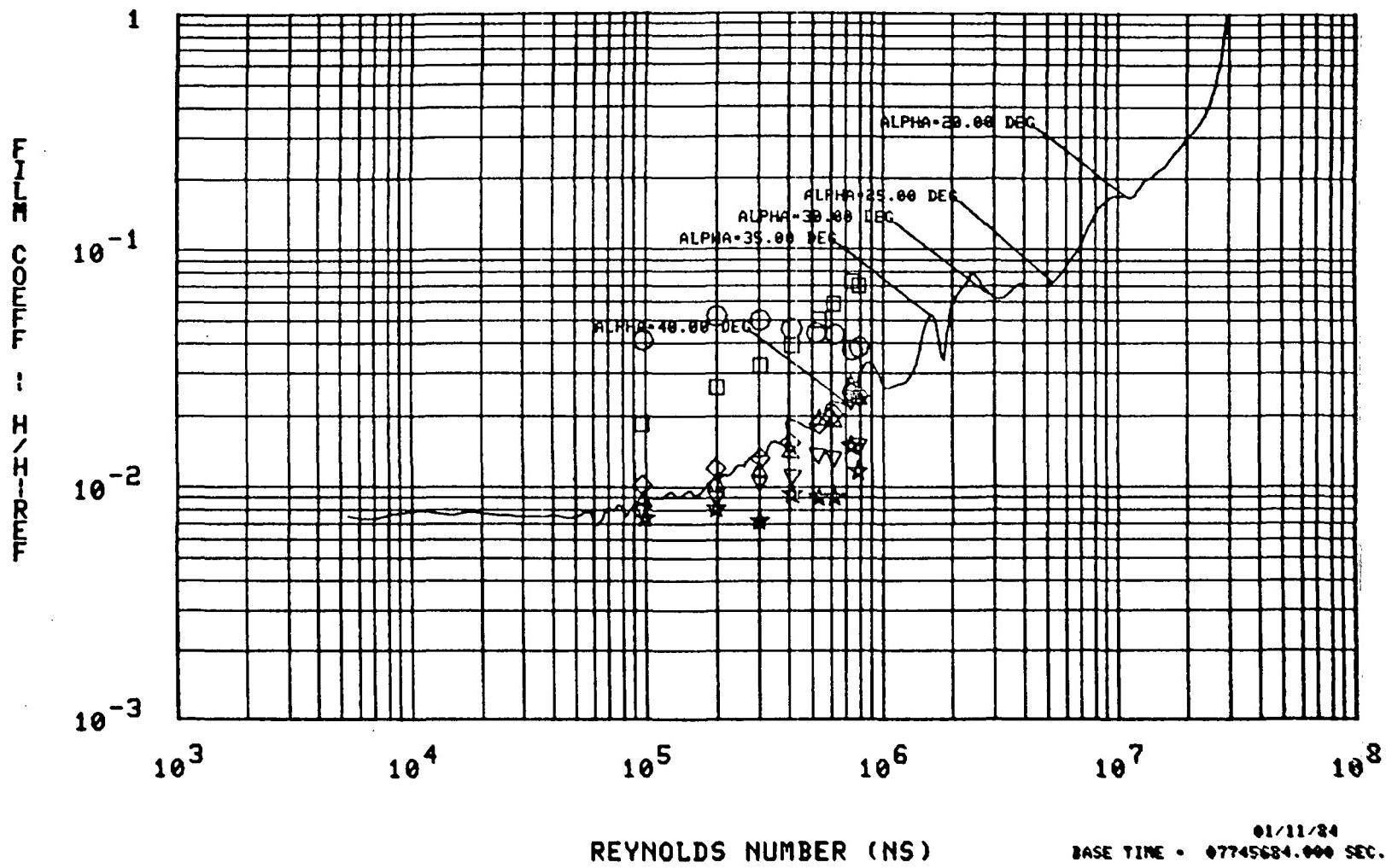
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9901A/H-REF 200-1440 SEC



B-188

REYNOLDS NUMBER (NS)

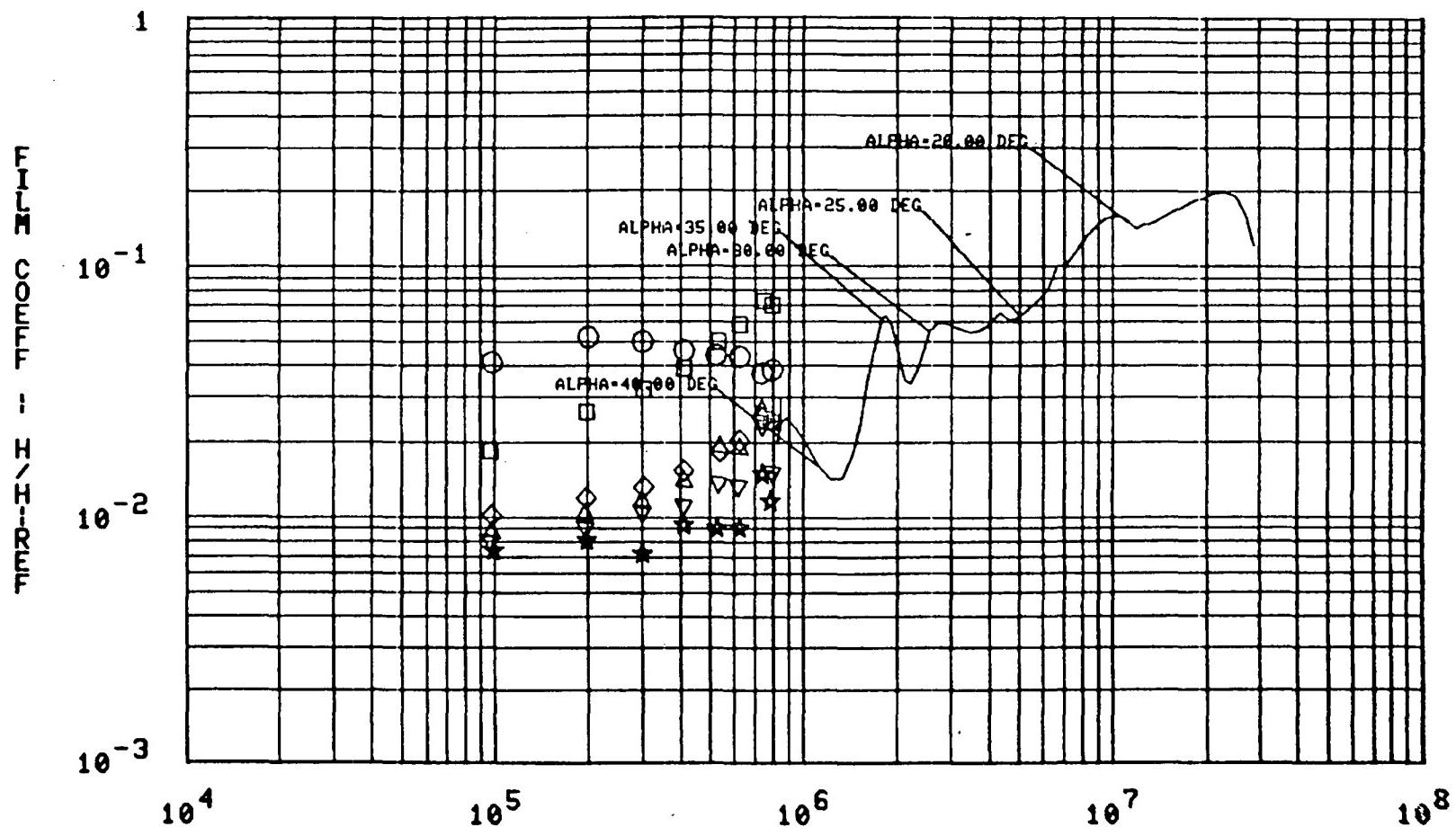
01/11/84
 BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9901A/H-REF 965-1360 SEC



B-189

REYNOLDS NUMBER (NS)

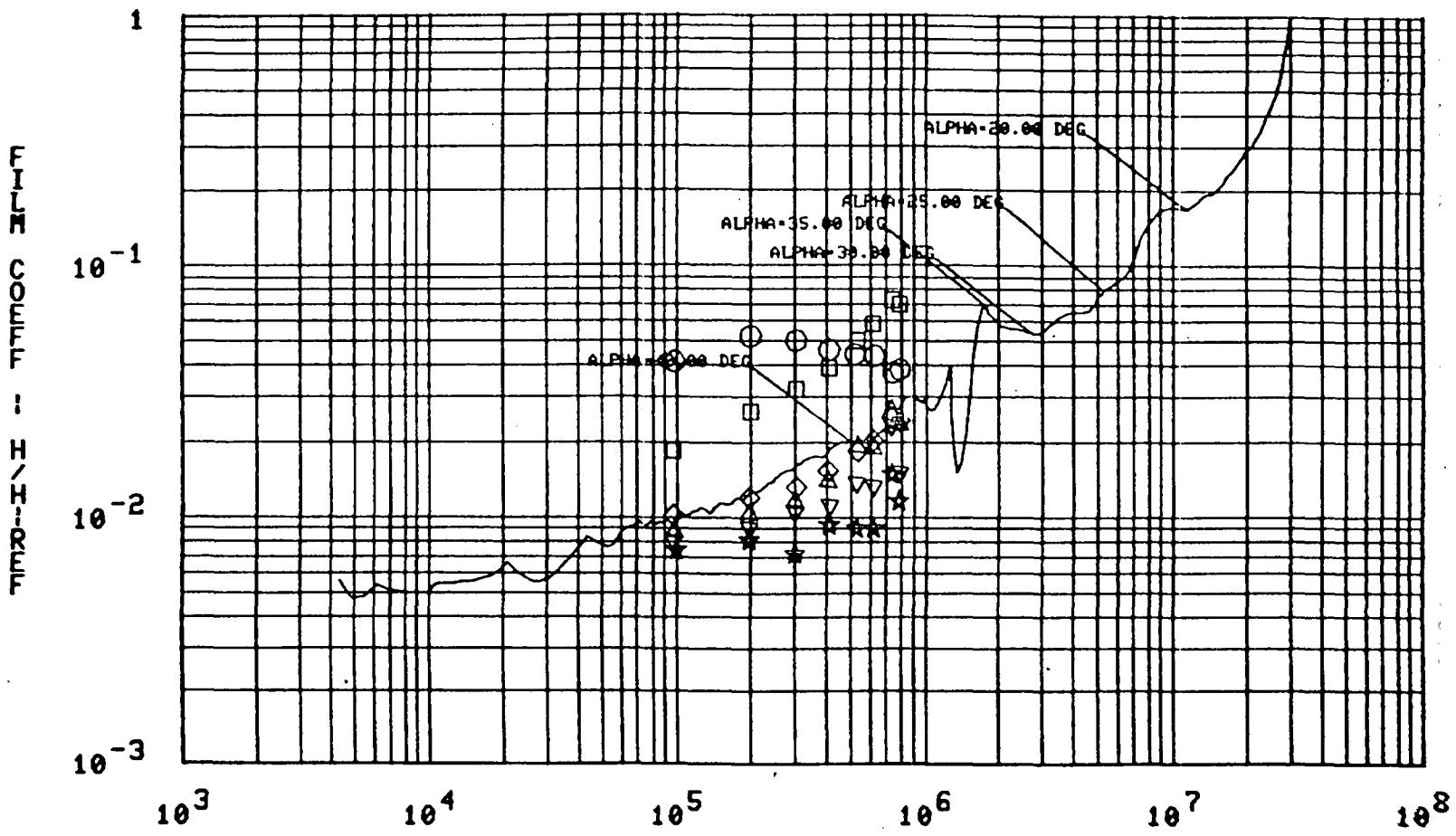
01/12/84

BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9901A/H-REF 150-1430 SEC



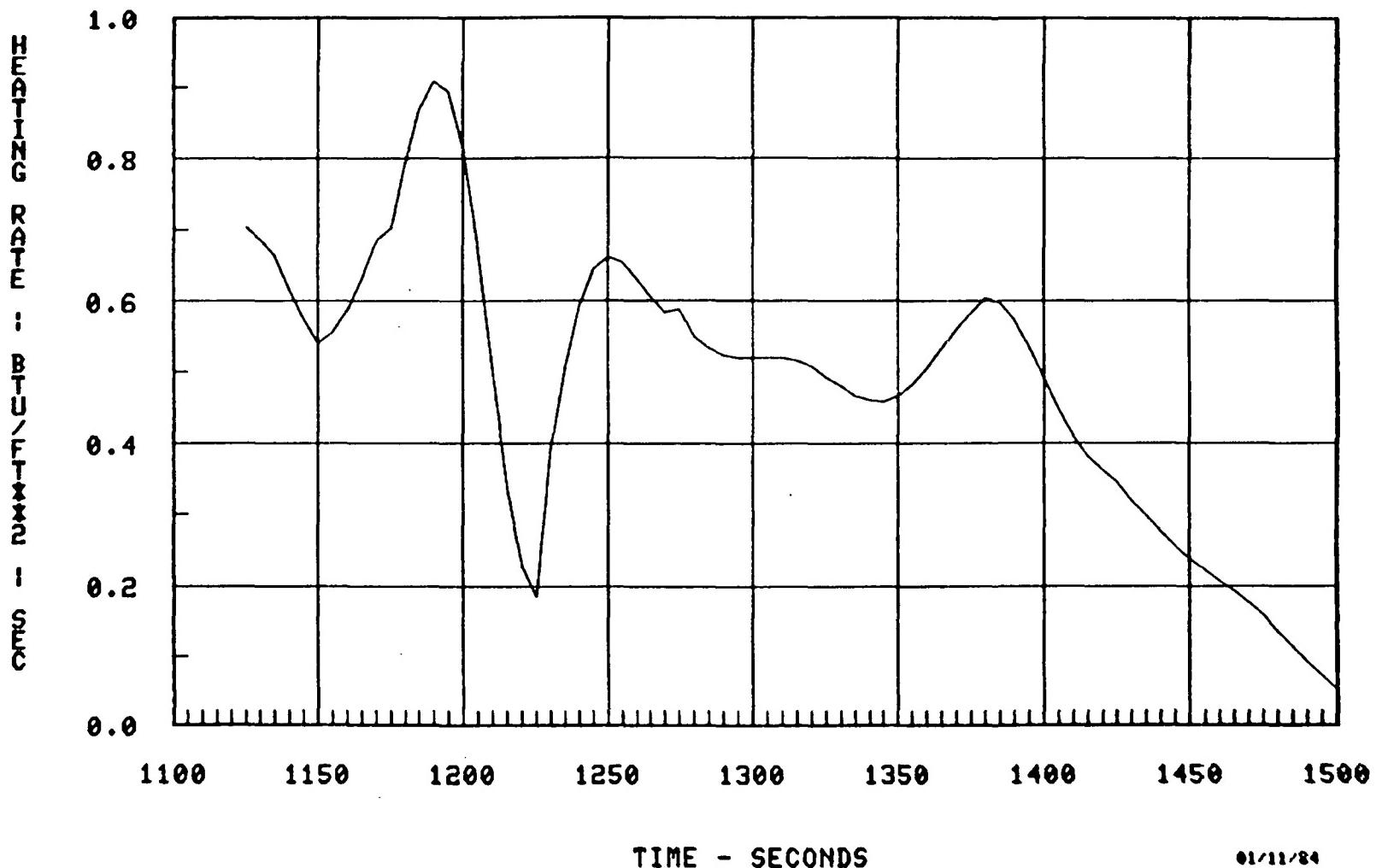
B-190

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

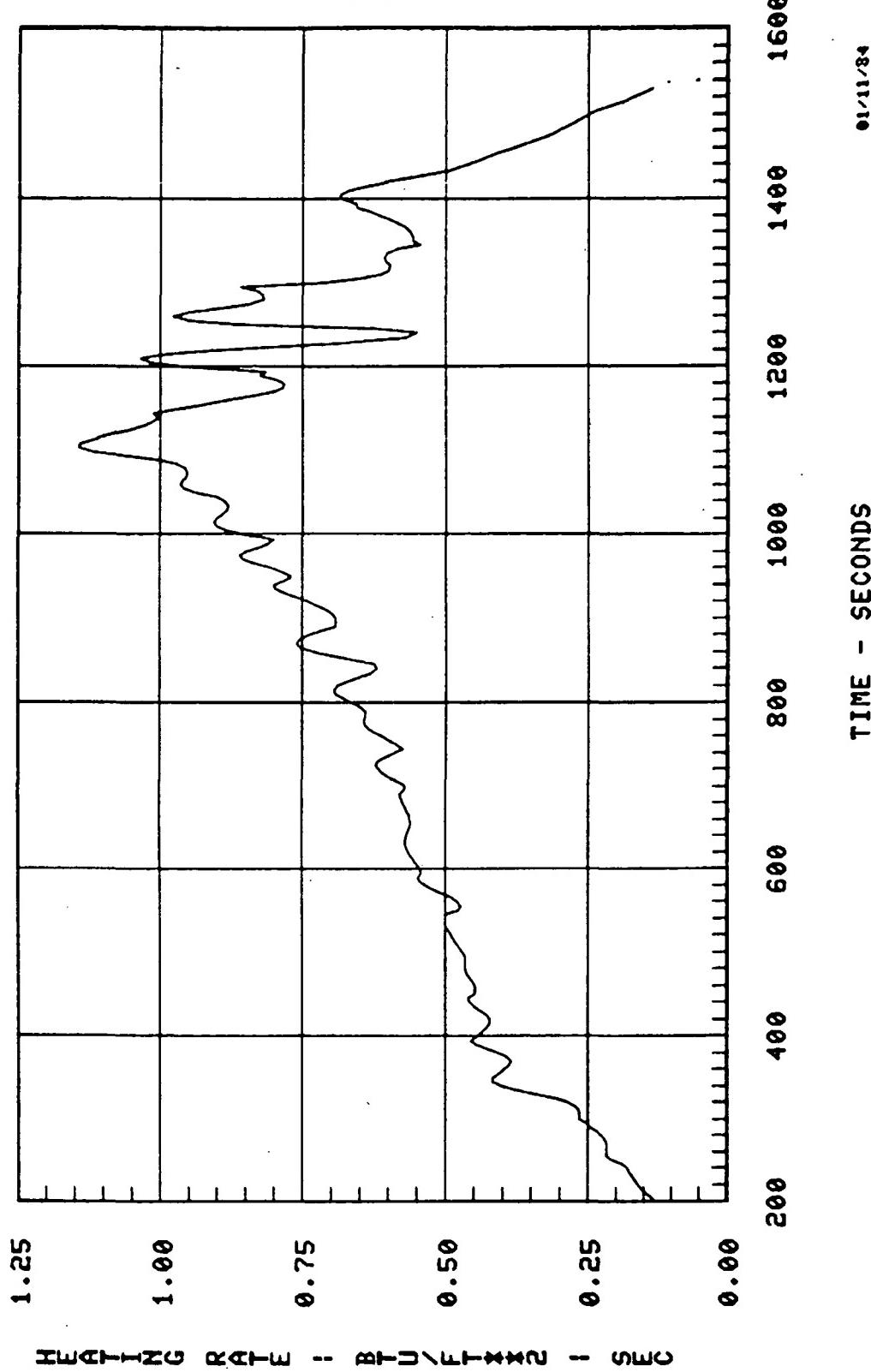
U07T9901A



01/11/84

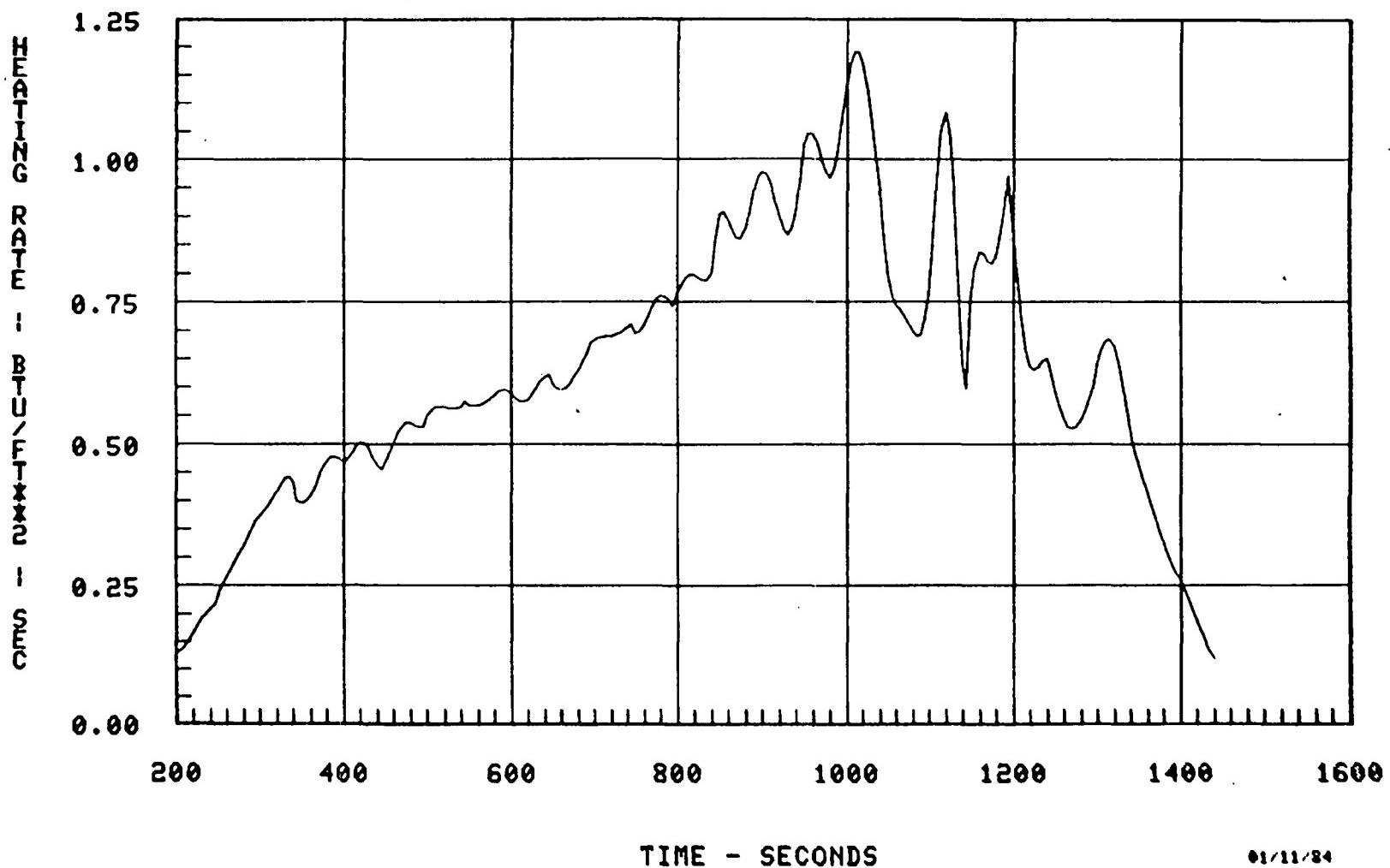
STS-2 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

W0779981A



STS-3 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

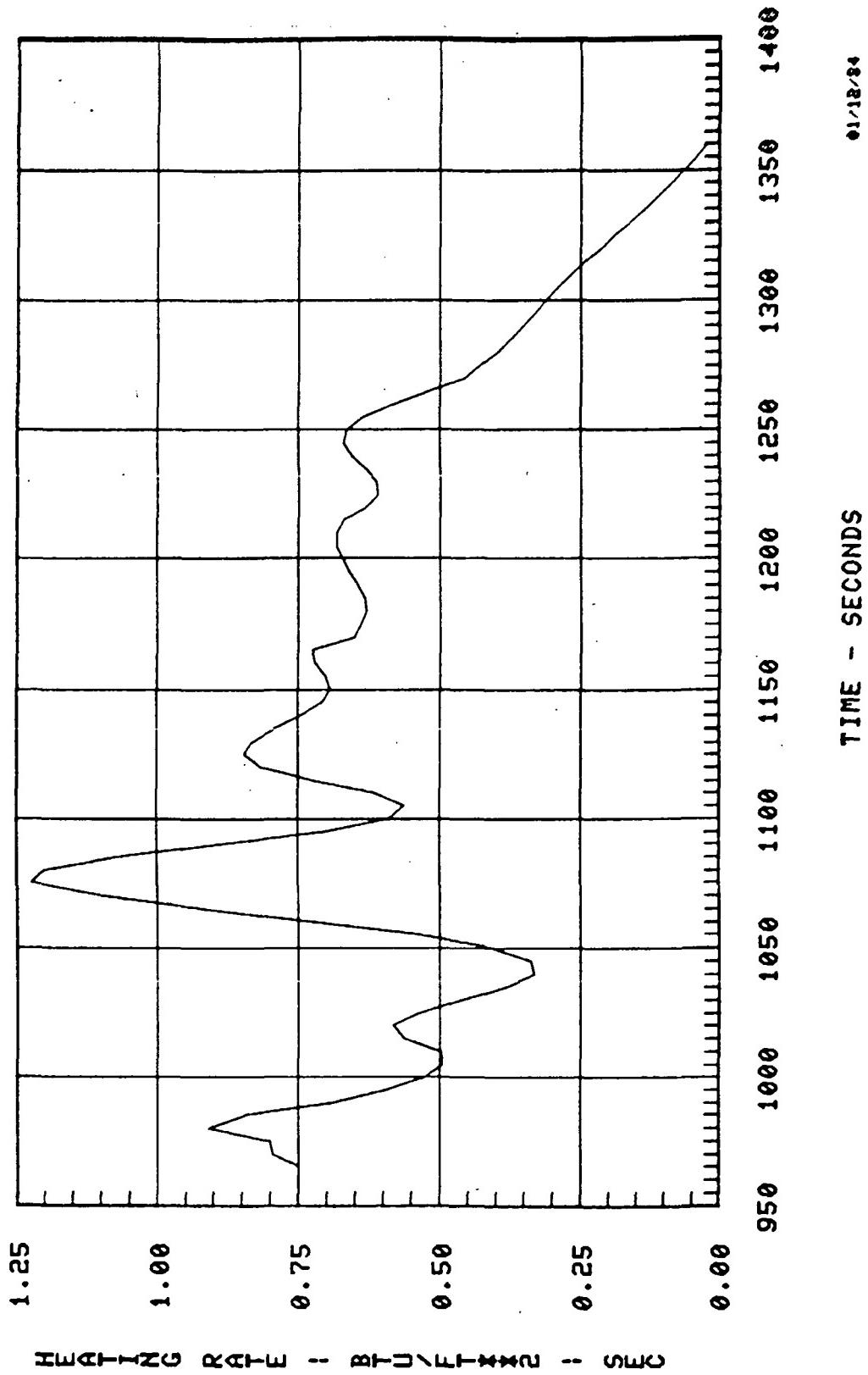
U07T9901A



01/11/84

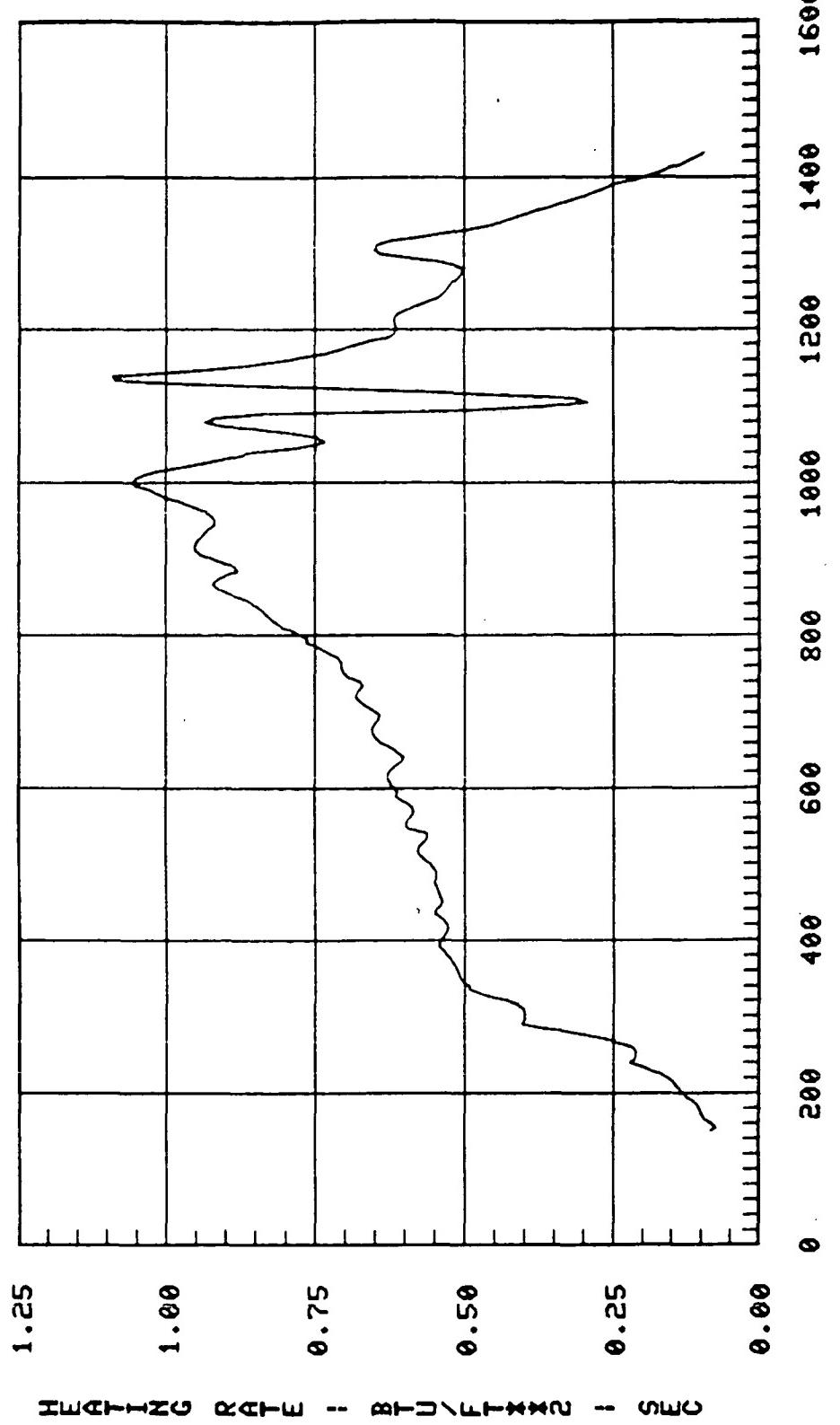
STS-4 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

U0779901A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

U0779991A



TIME - SECONDS

0118/64

STS-1 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

U8779901A

800

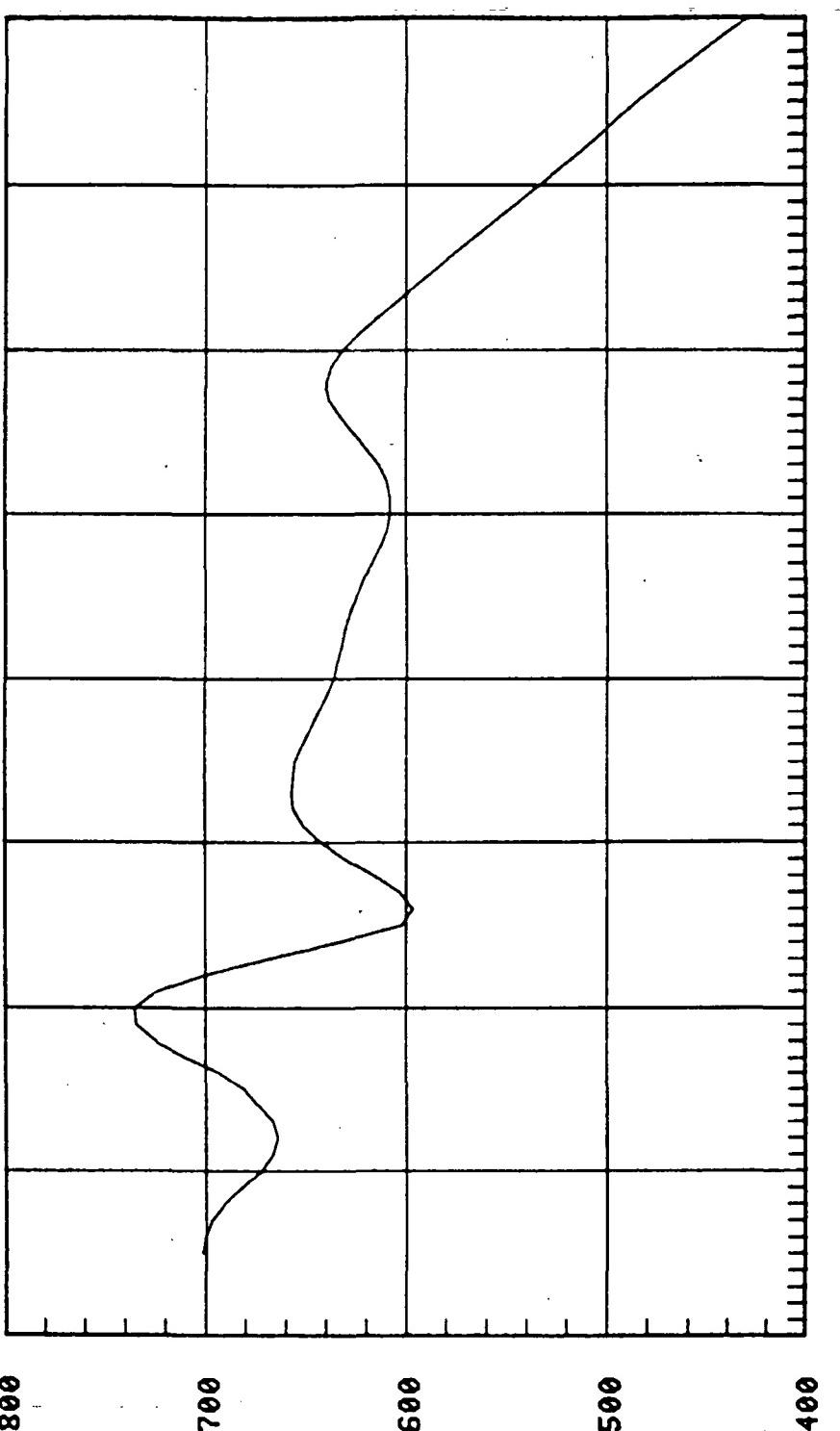
700

600

500

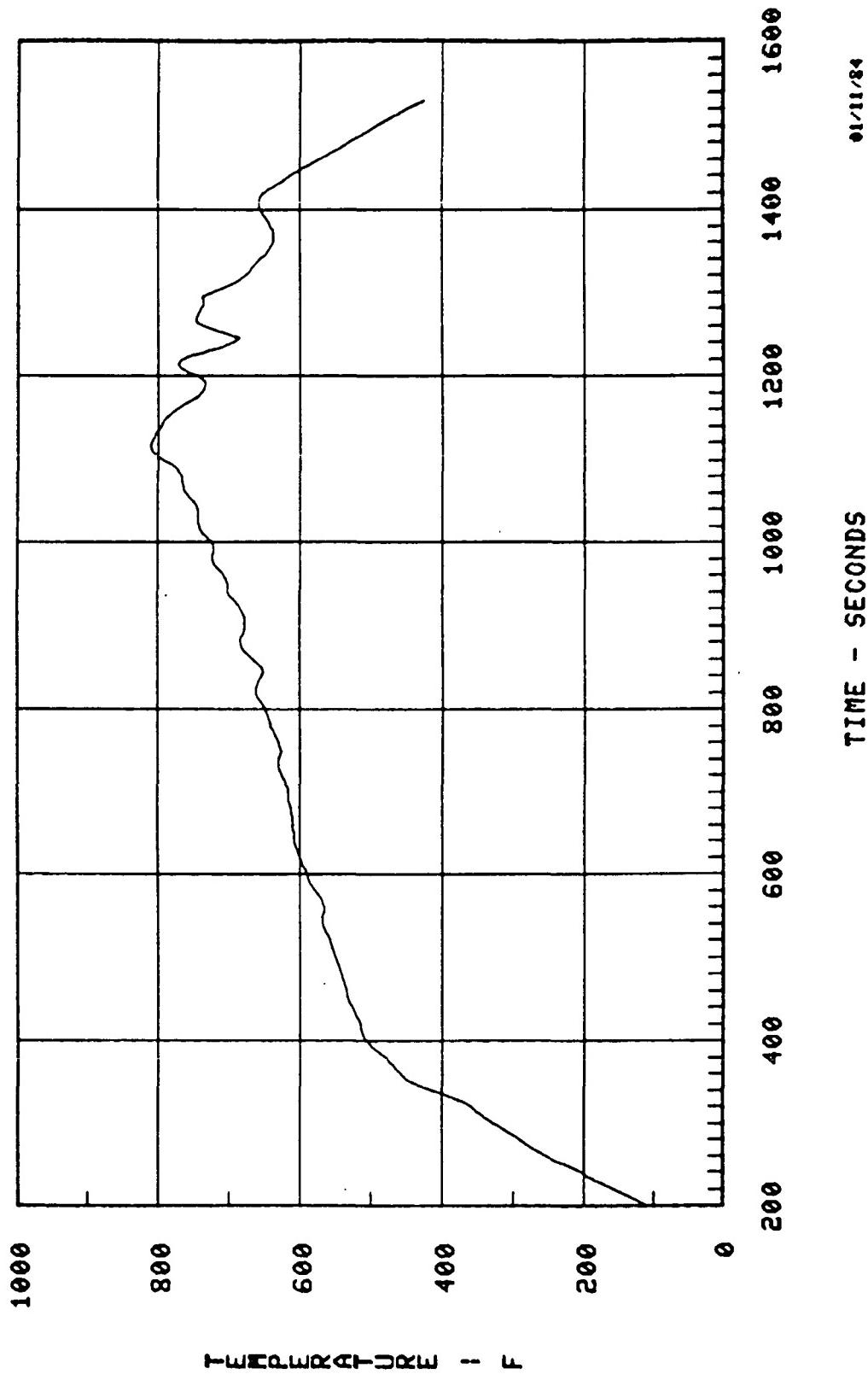
400

TIME - MILLISECONDS - F



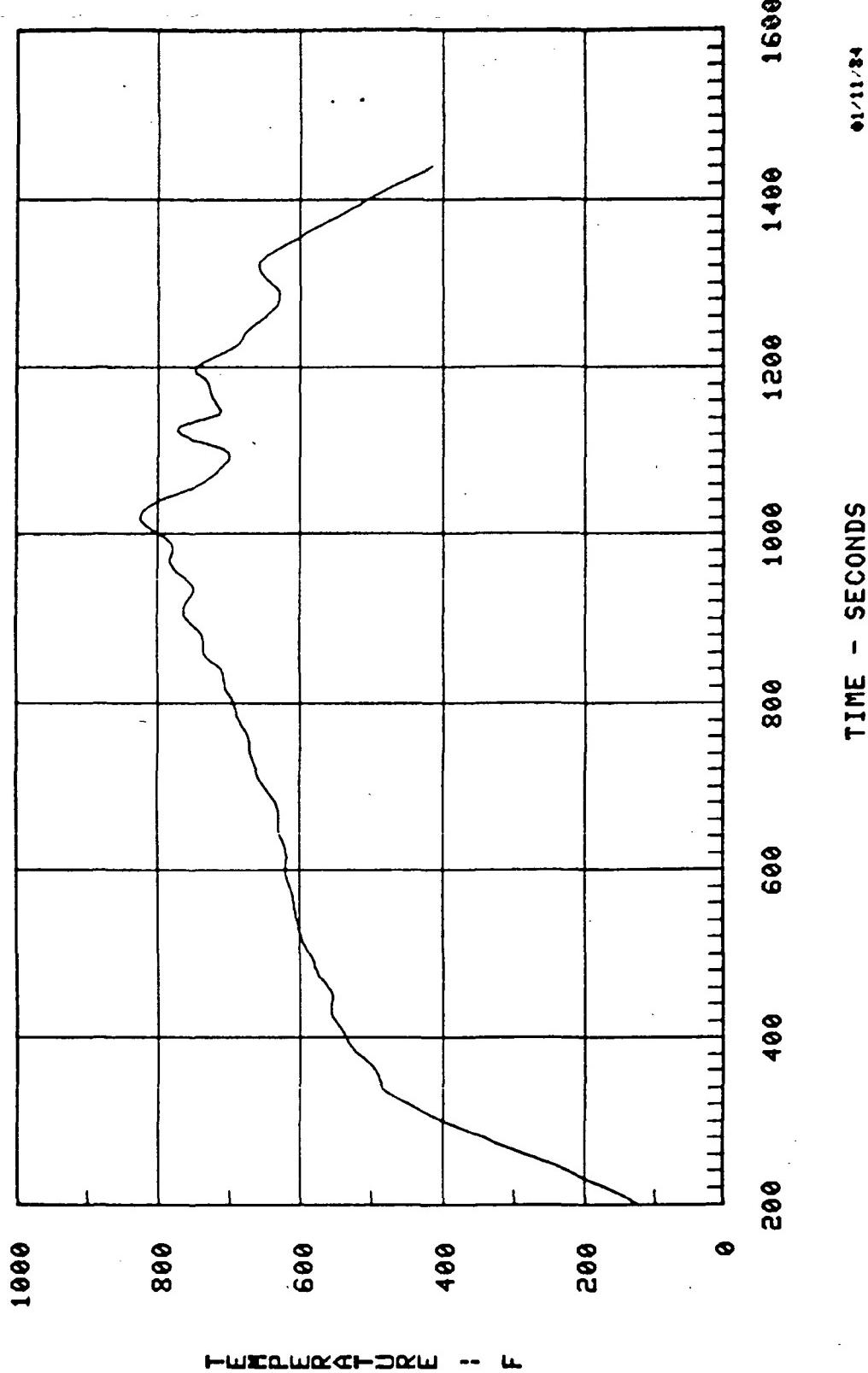
STS-2 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

U8779901A



STS-3 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

U07719901A

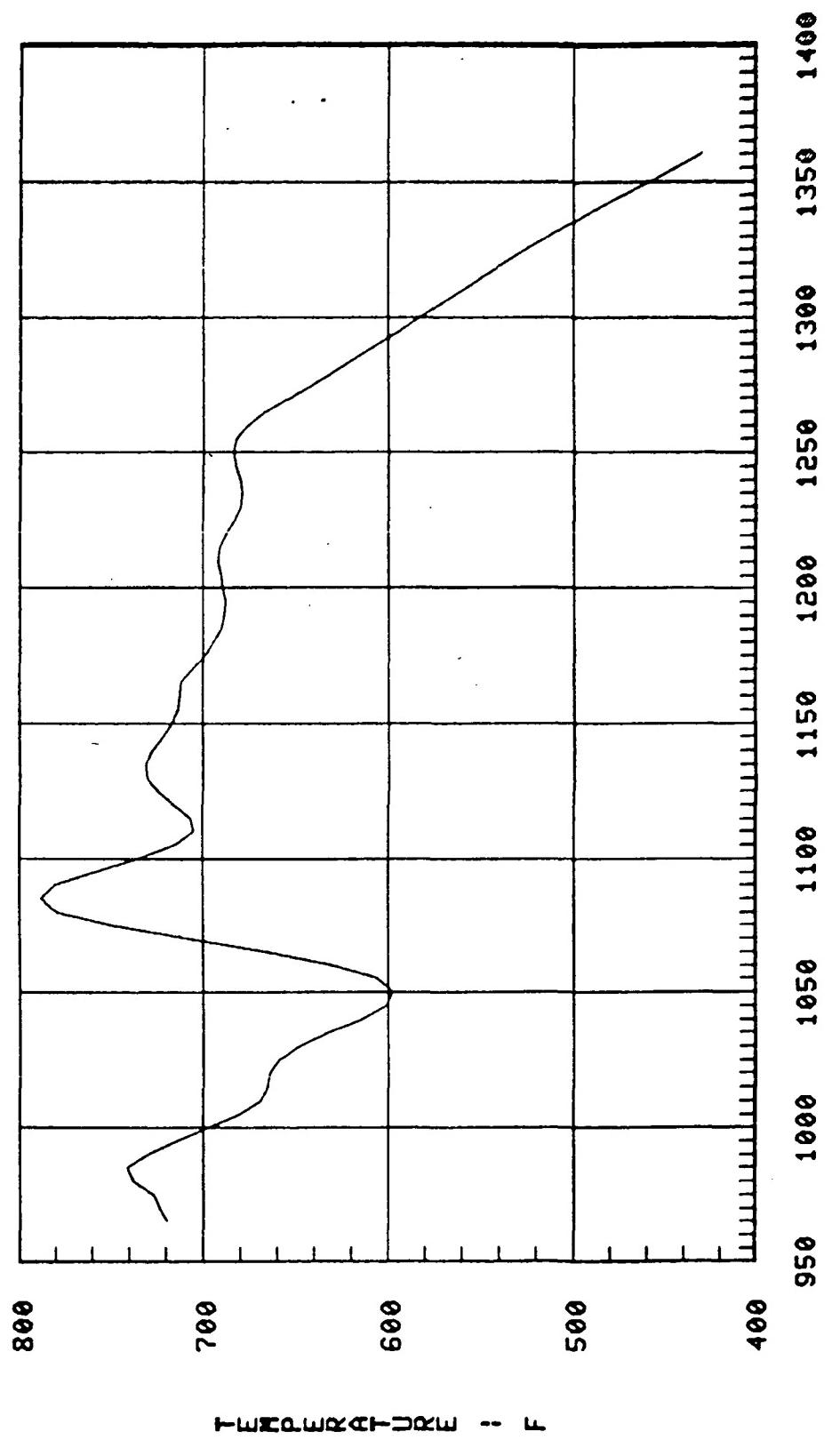


B-198

•1/11/84

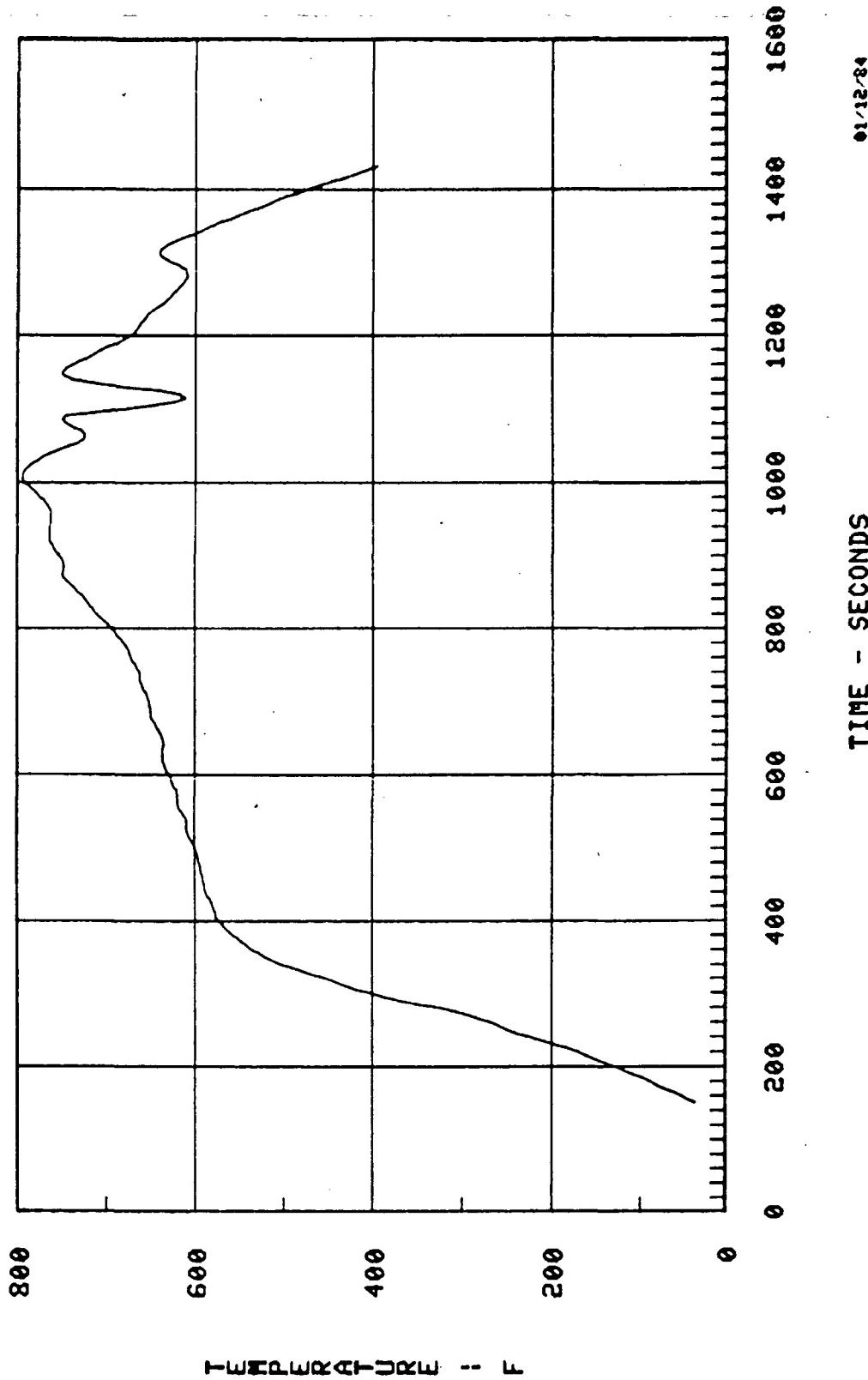
STS-4 (107 FT LENGTH SIDE FUS X/l = 0.50) Z=400

U07T9901A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.50) Z=400

007199014

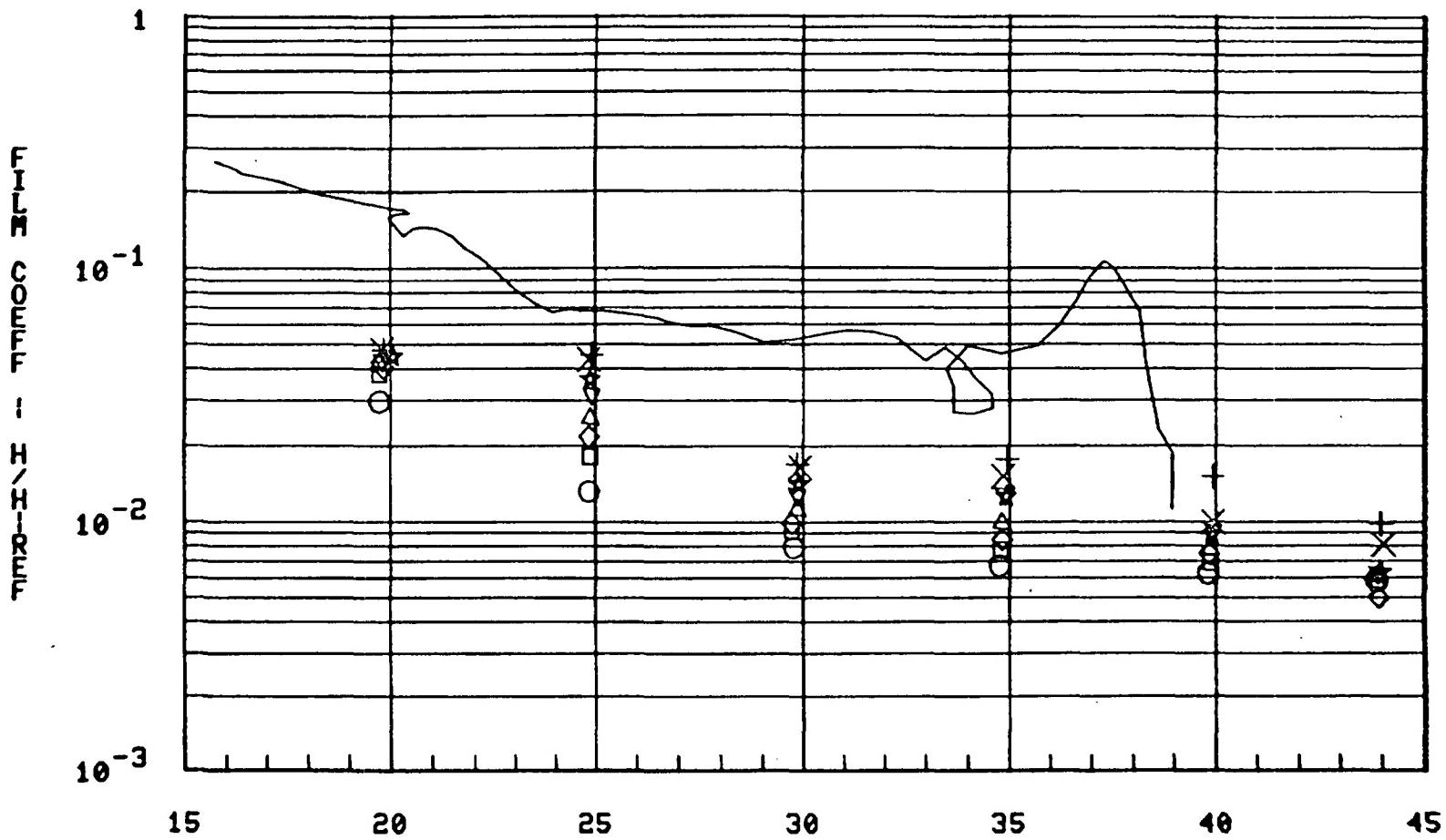


STS-1 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9905A/H-REF 1065-1500 SEC

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B-201

01/11/84
ANGLE-OF-ATTACK - DEG

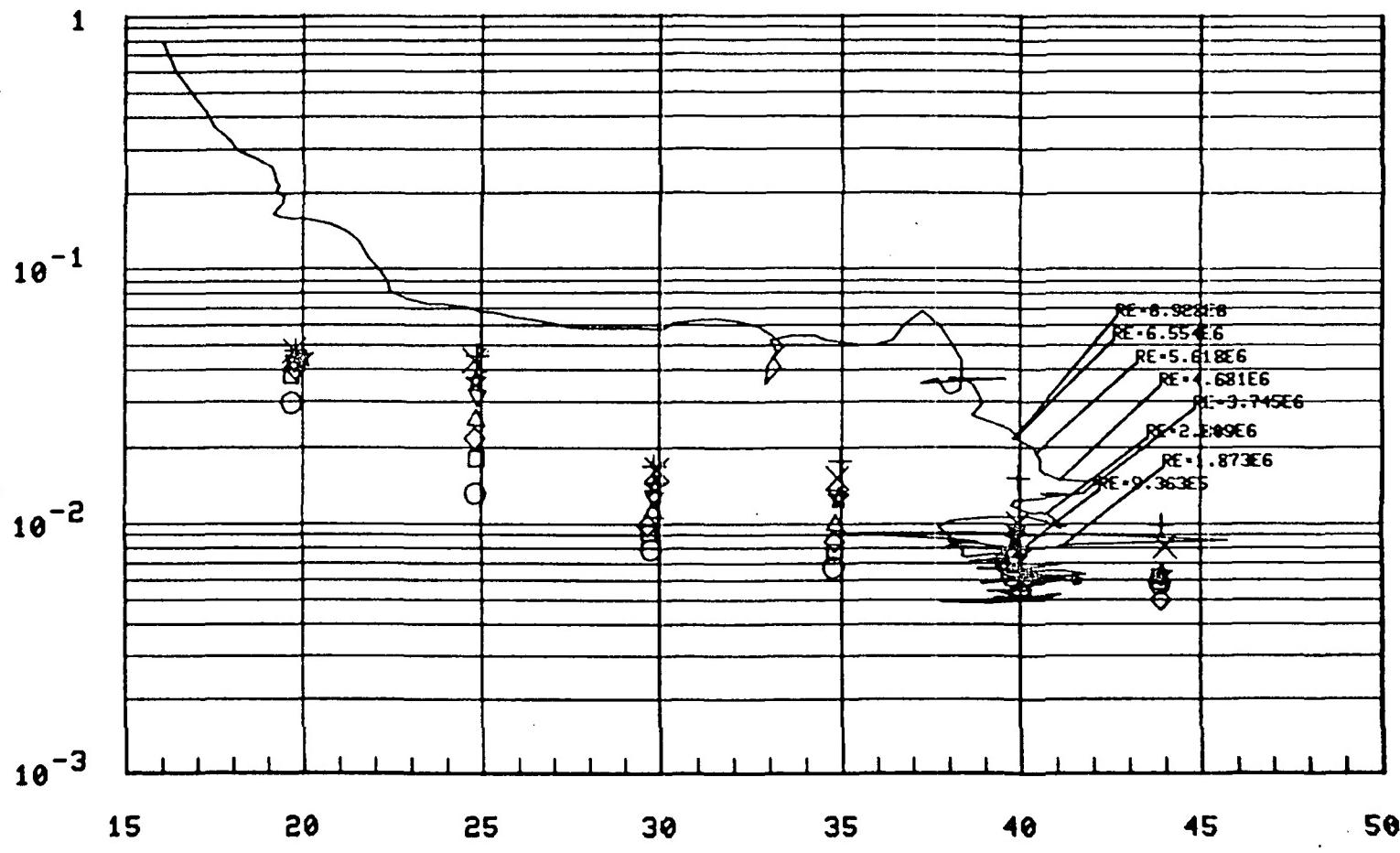
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9905A/H-REF 200-1530 SEC

LINE COLOR -- H/H-REF



B-202

ANGLE-OF-ATTACK - DEG

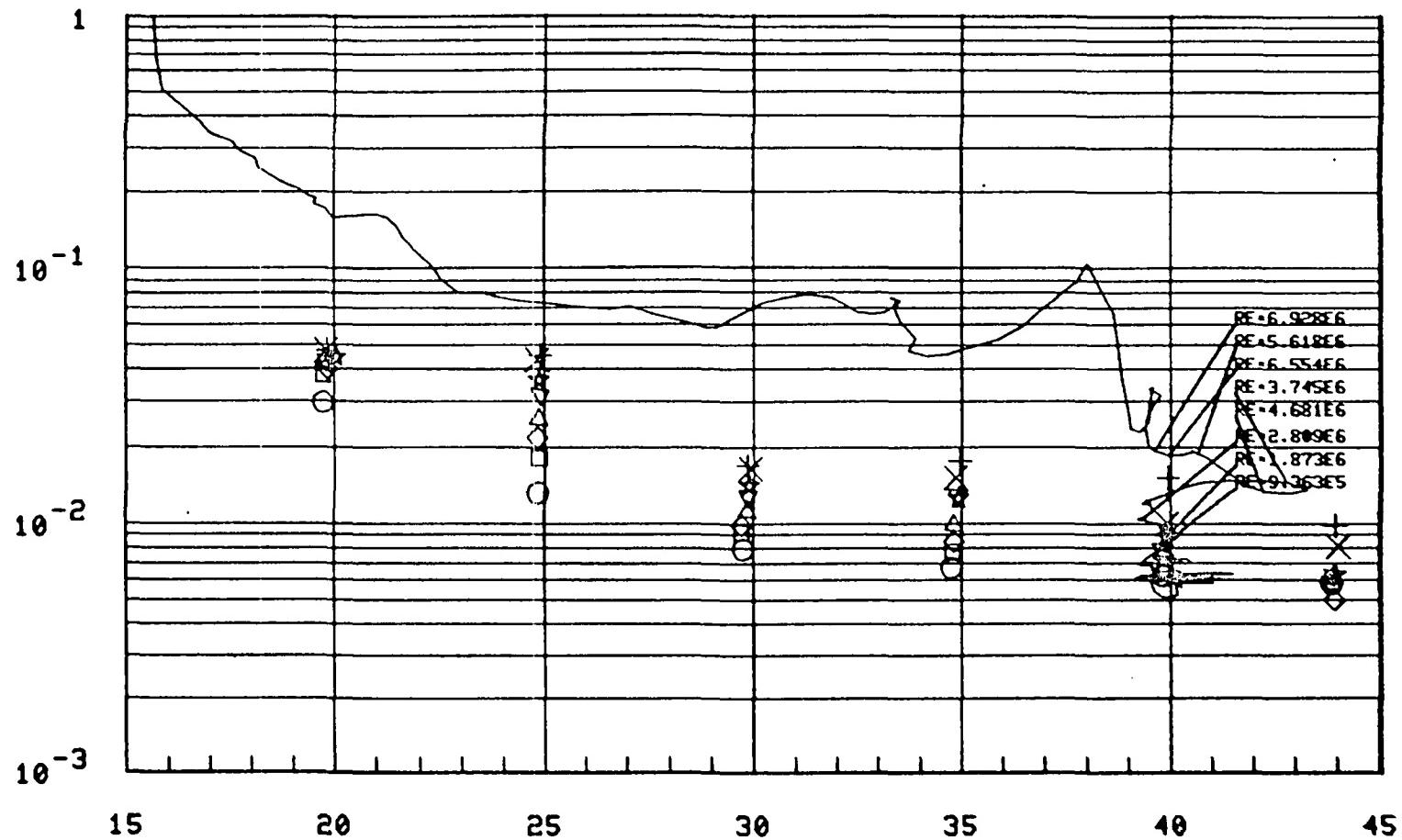
01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

OH74 0.0175 SCALE RE • 0.5 E06
 OH74 0.0175 SCALE RE • 1.0 E06
 OH74 0.0175 SCALE RE • 1.5 E06
 OH74 0.0175 SCALE RE • 2.0 E06
 OH74 0.0175 SCALE RE • 2.5 E06
 OH74 0.0175 SCALE RE • 3.0 E06
 OH74 0.0175 SCALE RE • 3.5 E06
 OH74 0.0175 SCALE RE • 3.7 E06

U07T9905A/H-REF 200-1440 SEC

O □ ◇ △ ★ + X



B-203

ANGLE-OF-ATTACK - DEG

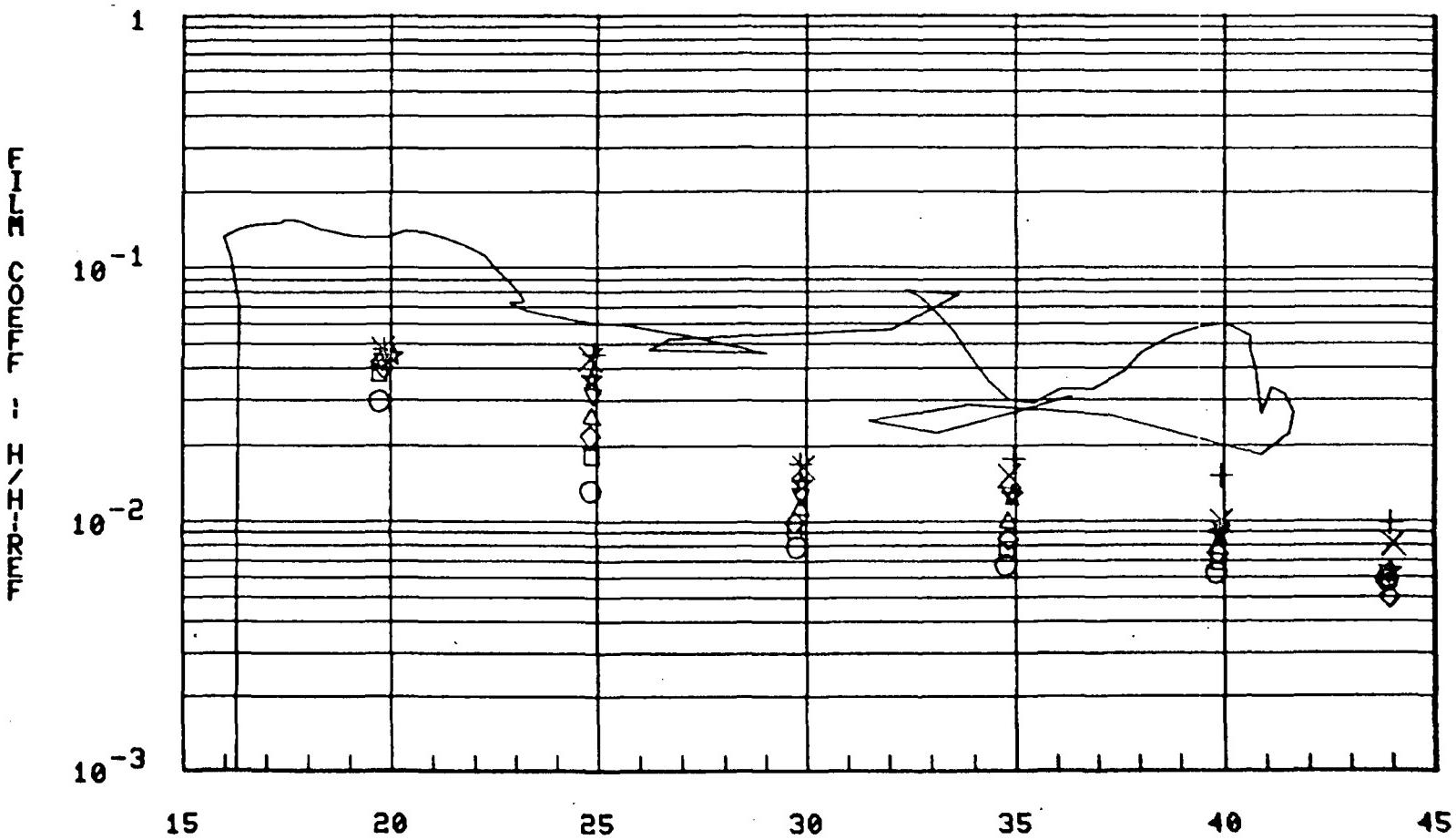
01/11/84
BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U07T9905A/H-REF 965-13E0 SEC

○ ◇ ▲ △ ★ + X



B-204

ANGLE-OF-ATTACK - DEG

01/12/84

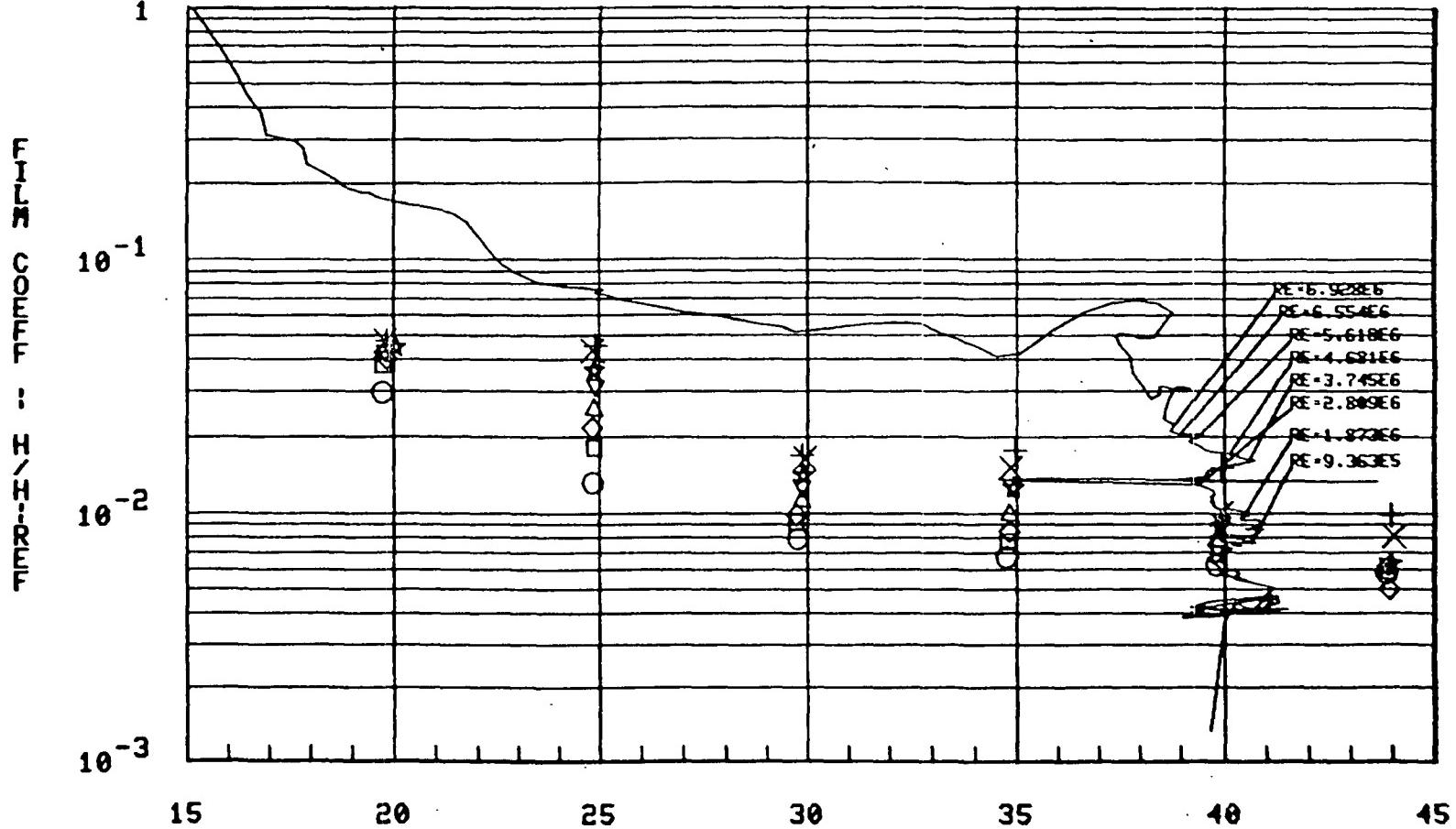
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9905A/H-REF 150-1430 SEC

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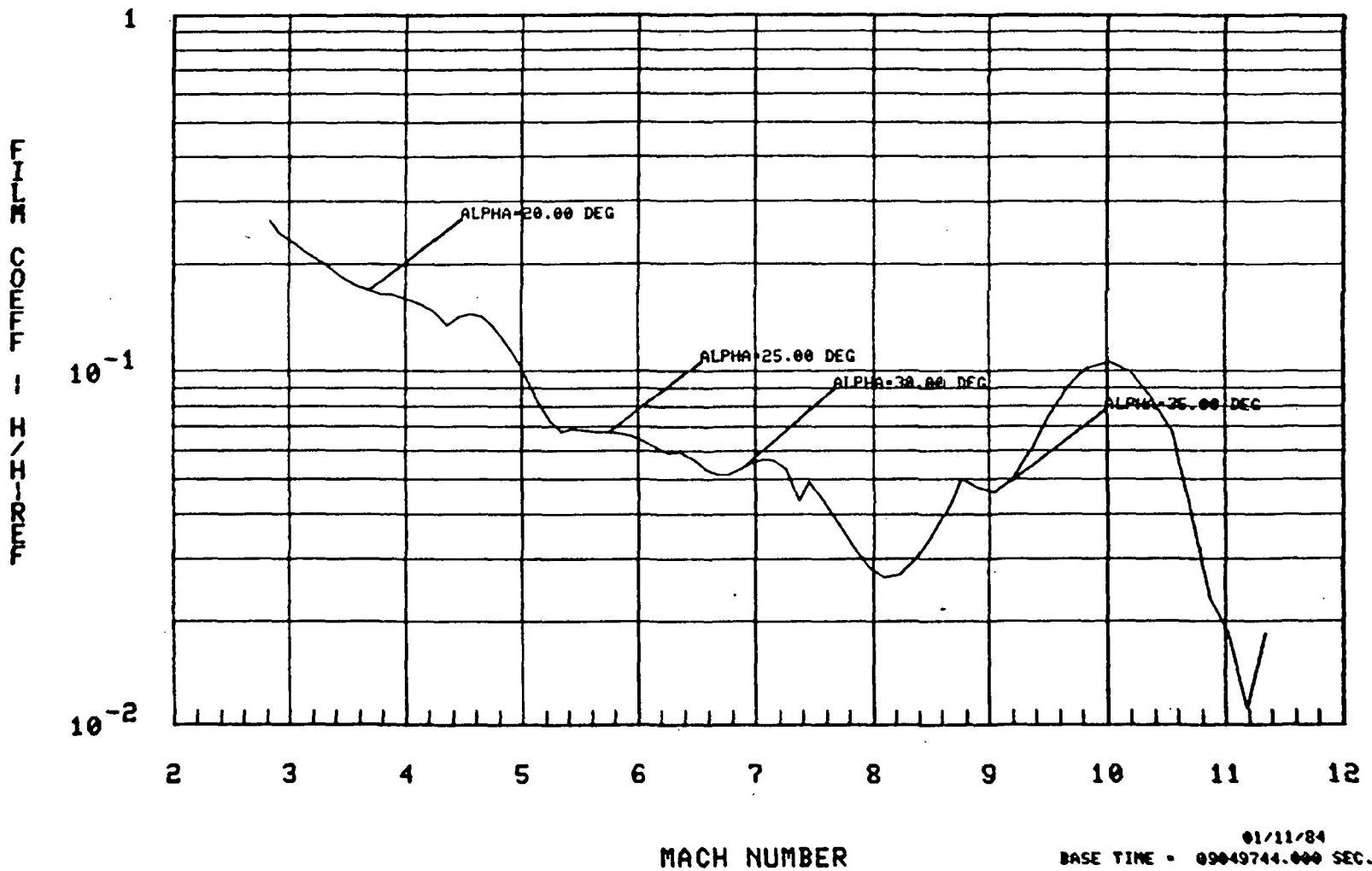
B-205

ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U07T9905A/H-REF 1065-1500 SEC



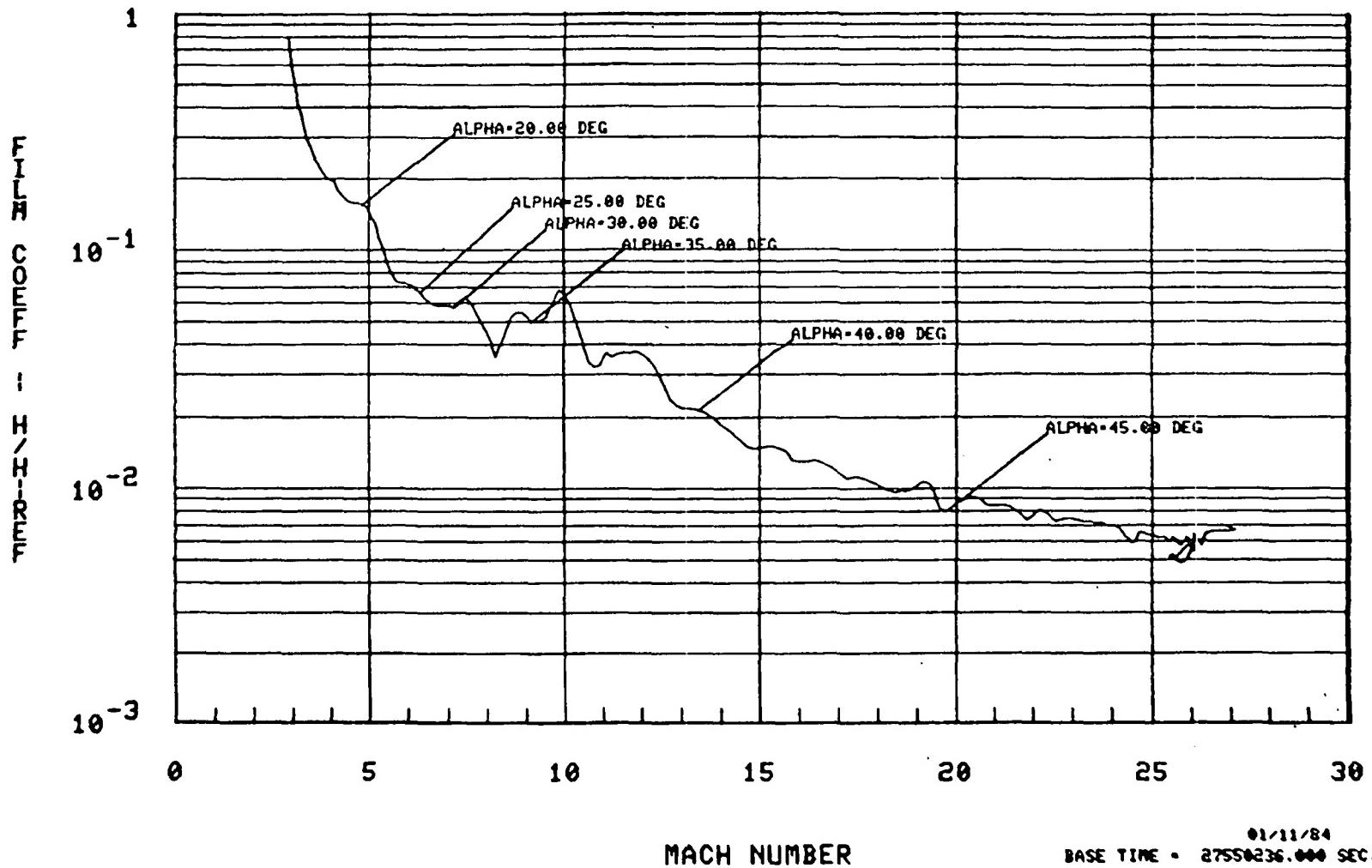
01/11/84
MACH NUMBER

BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U07T9905A/H-REF 200-1530 SEC

B-207

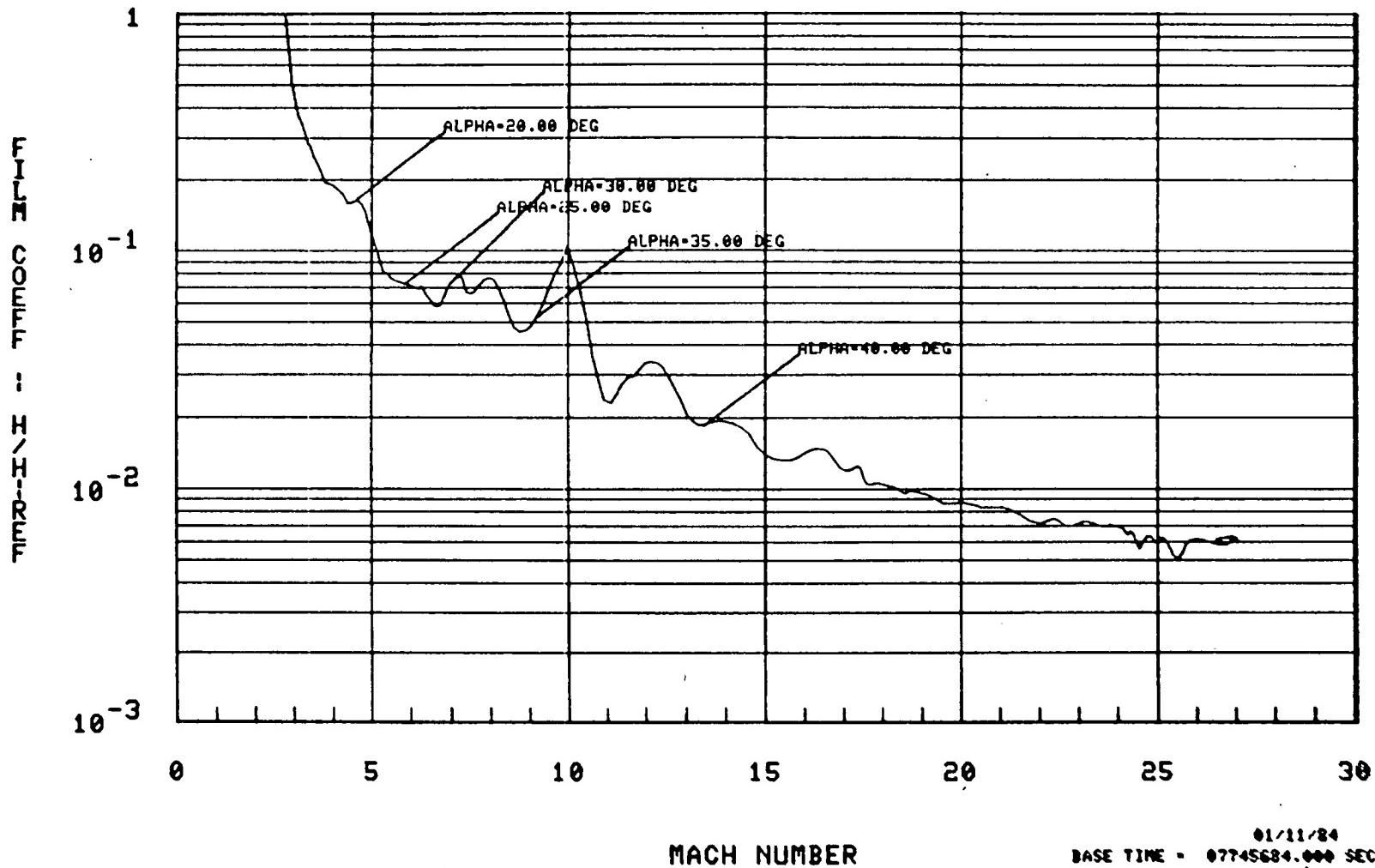


MACH NUMBER

01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U07T9905A/H-REF 200-1440 SEC

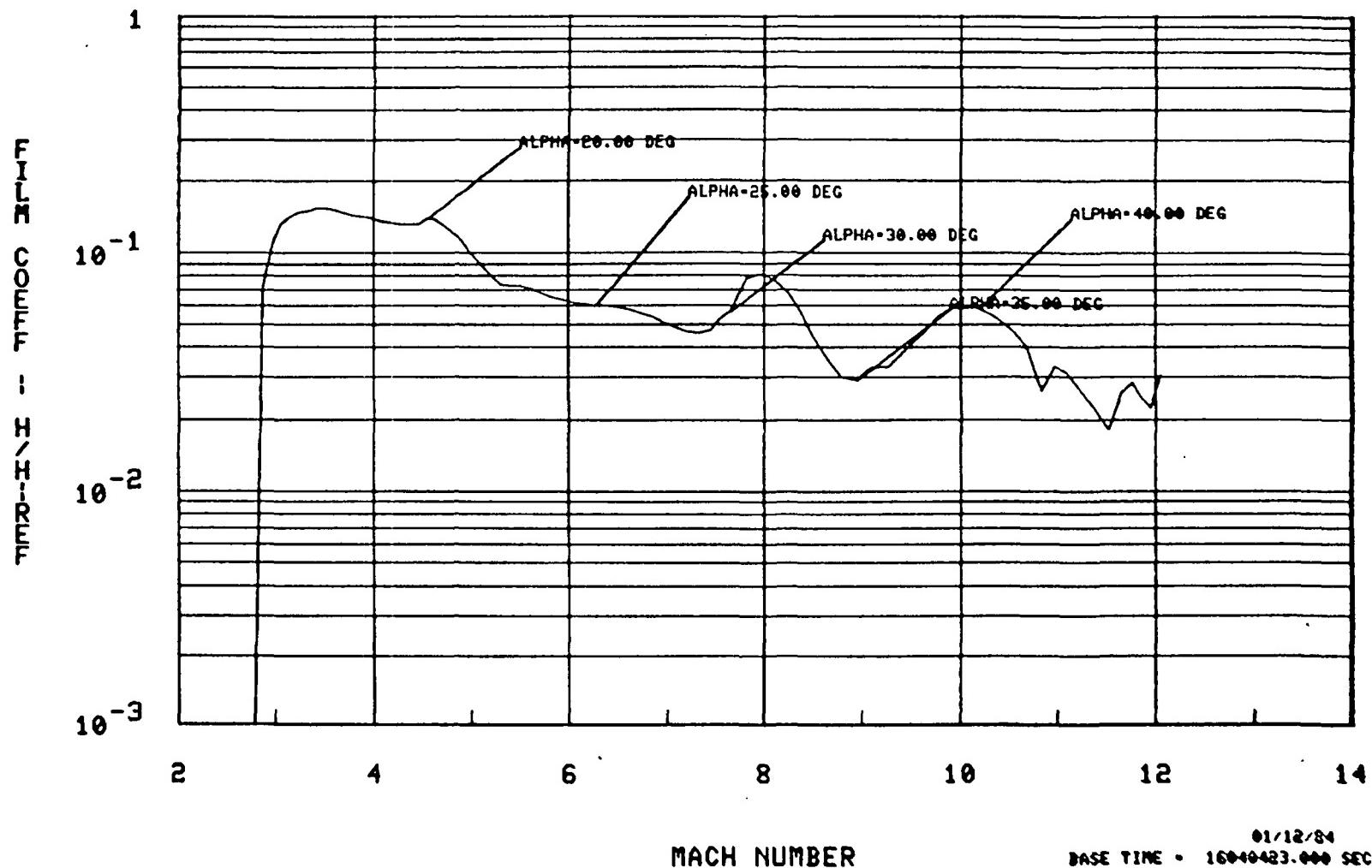


MACH NUMBER

01/11/84
BASE TIME = 07745684.000 SEC.

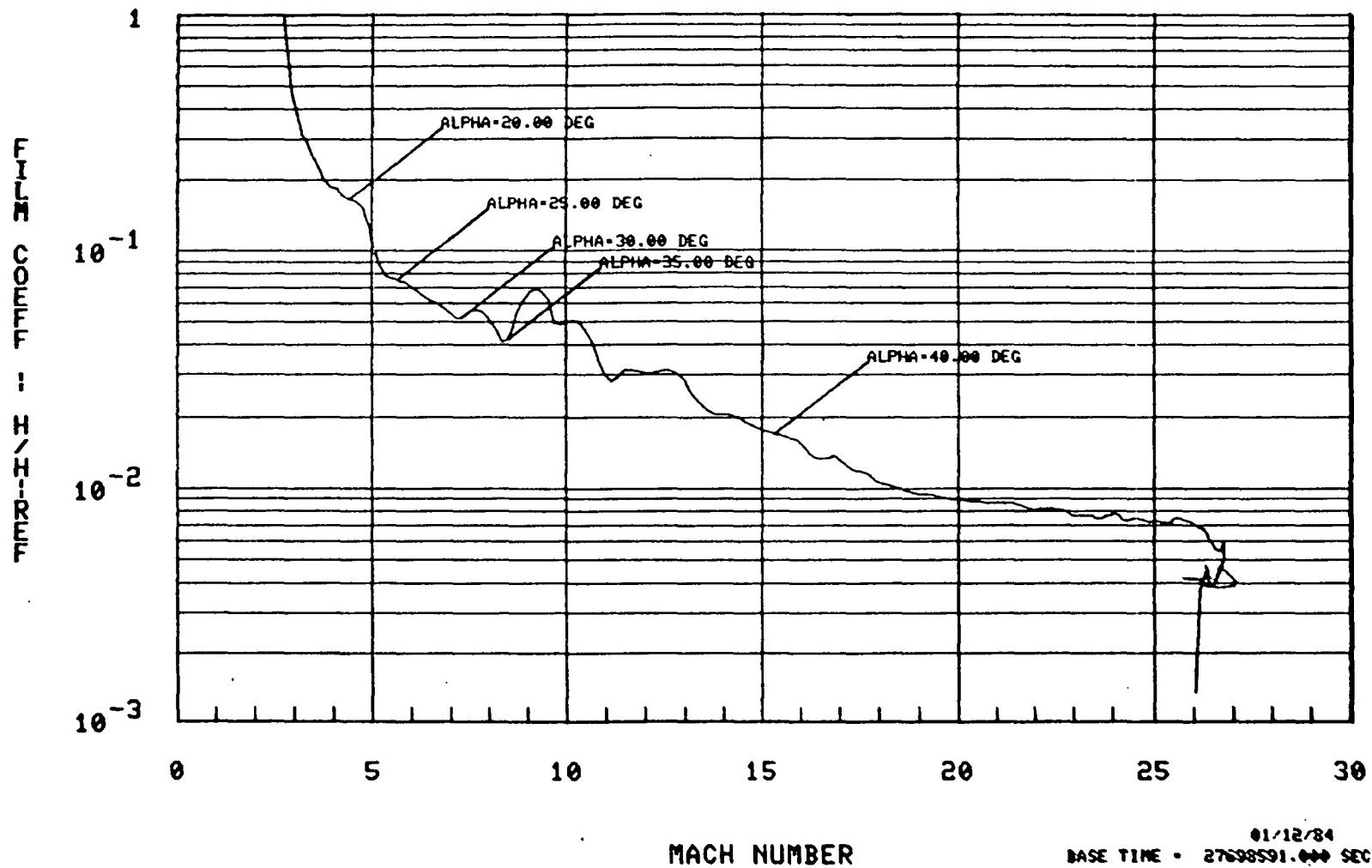
STS-4 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U07T9905A/H-REF 965-1360 SEC



STS-5 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U07T9905A/H-REF 150-1430 SEC

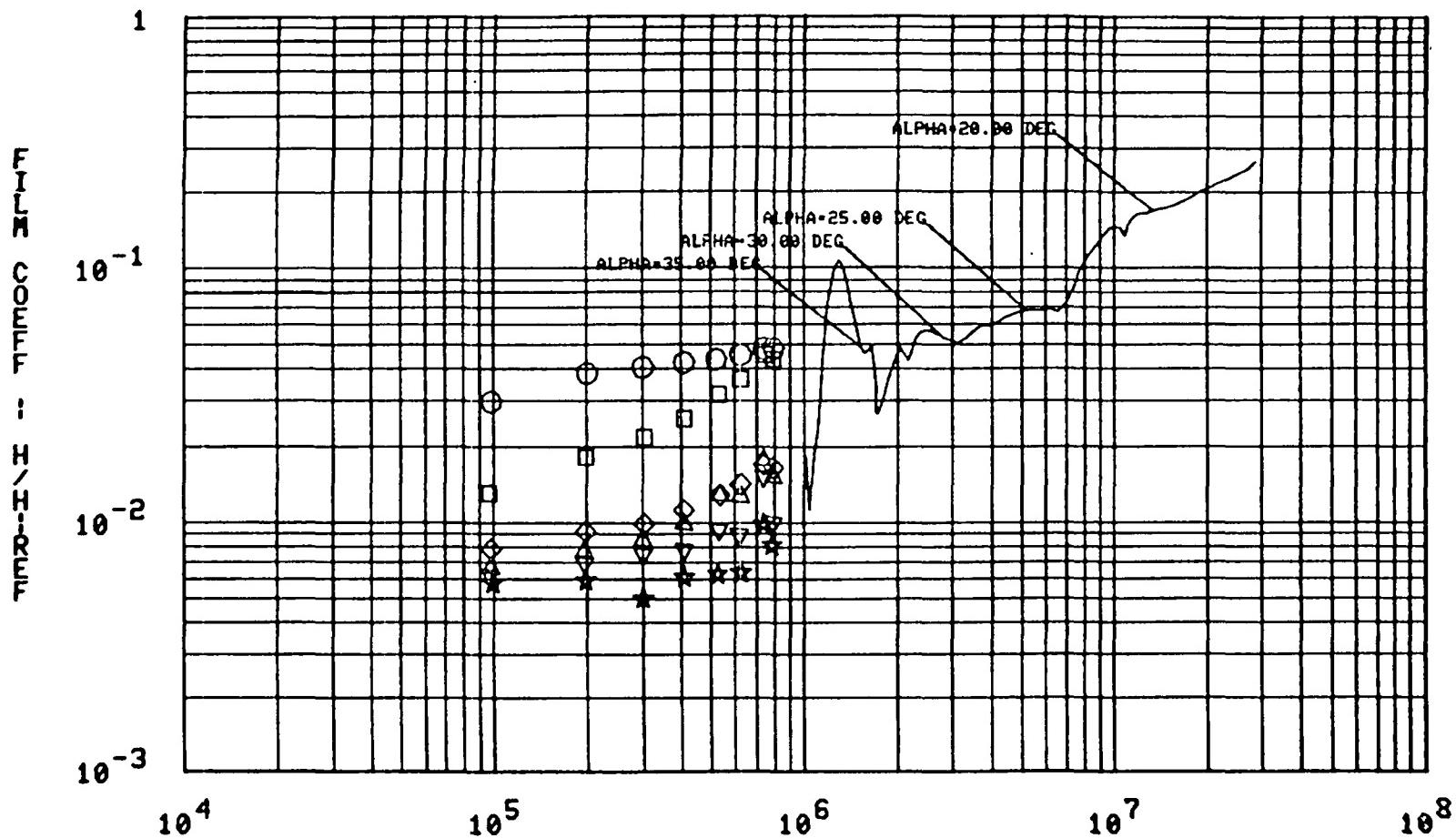


STS-1 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9905A/H-REF 1065-1500 SEC

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B-211

REYNOLDS NUMBER (NS)

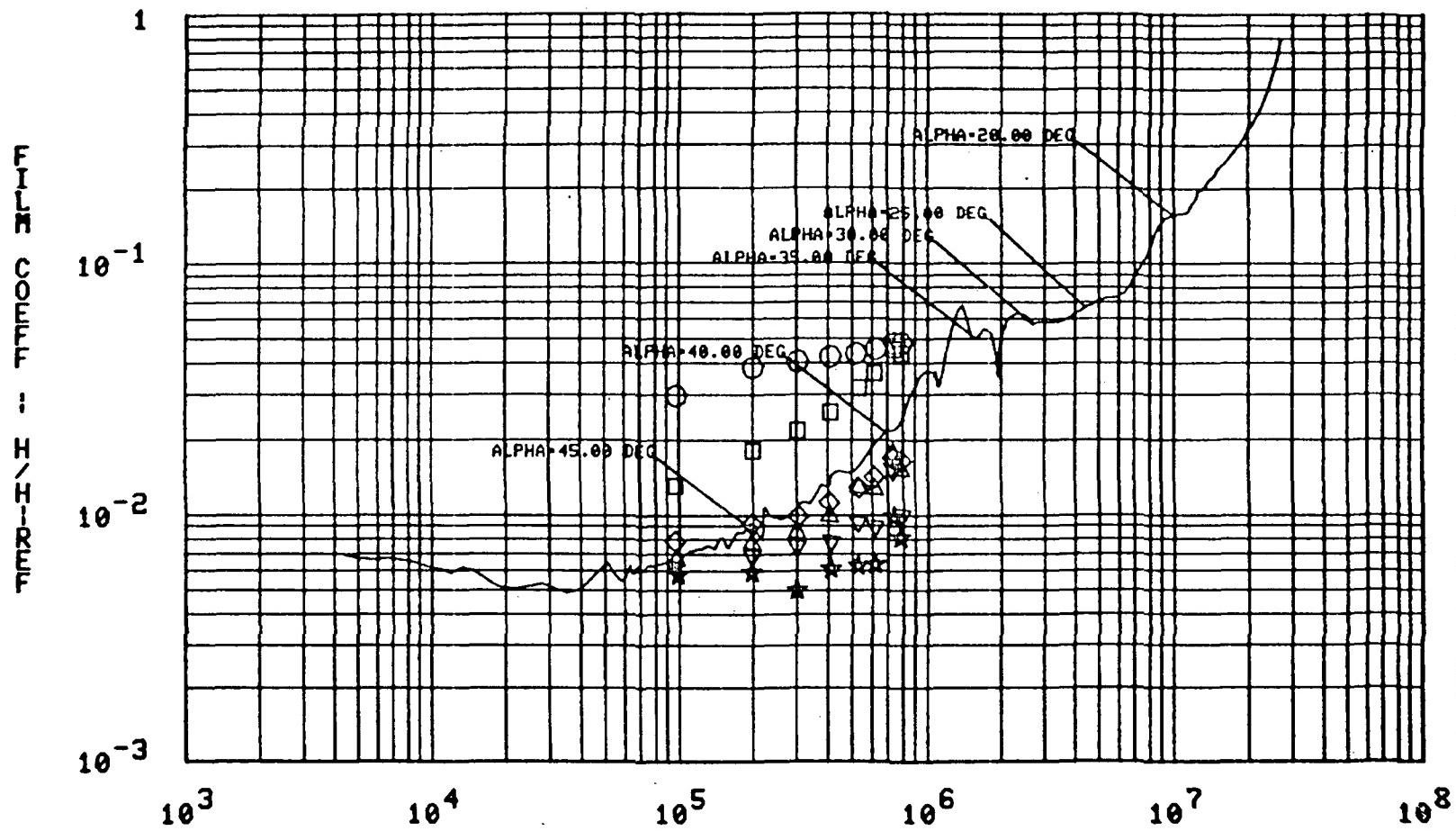
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U87T9905A/H-REF 200-1530 SEC



B-212

REYNOLDS NUMBER (NS)

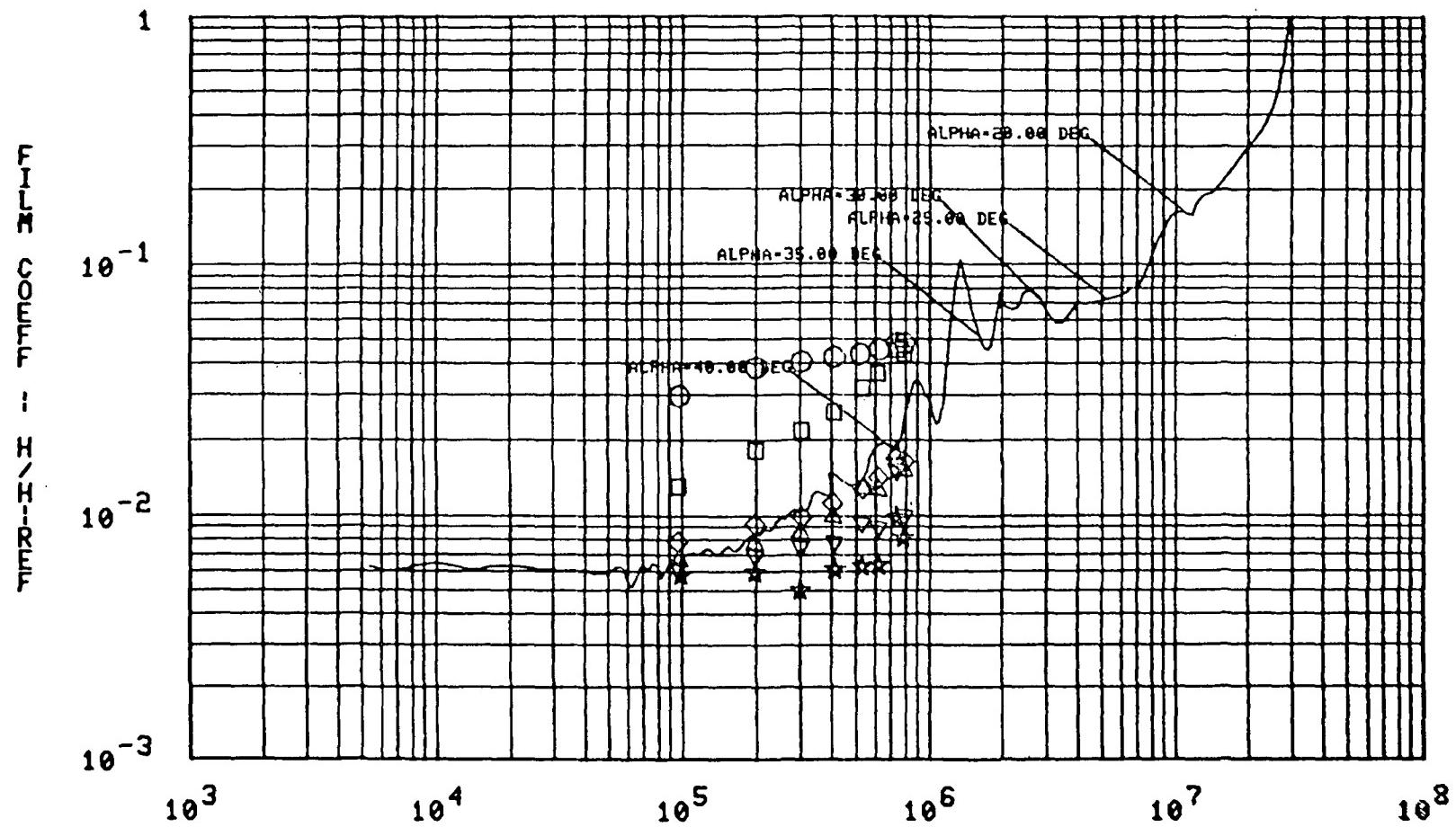
01/11/84
 BASE TIME - 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9905A/H-REF 200-1440 SEC

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B-213

REYNOLDS NUMBER (NS)

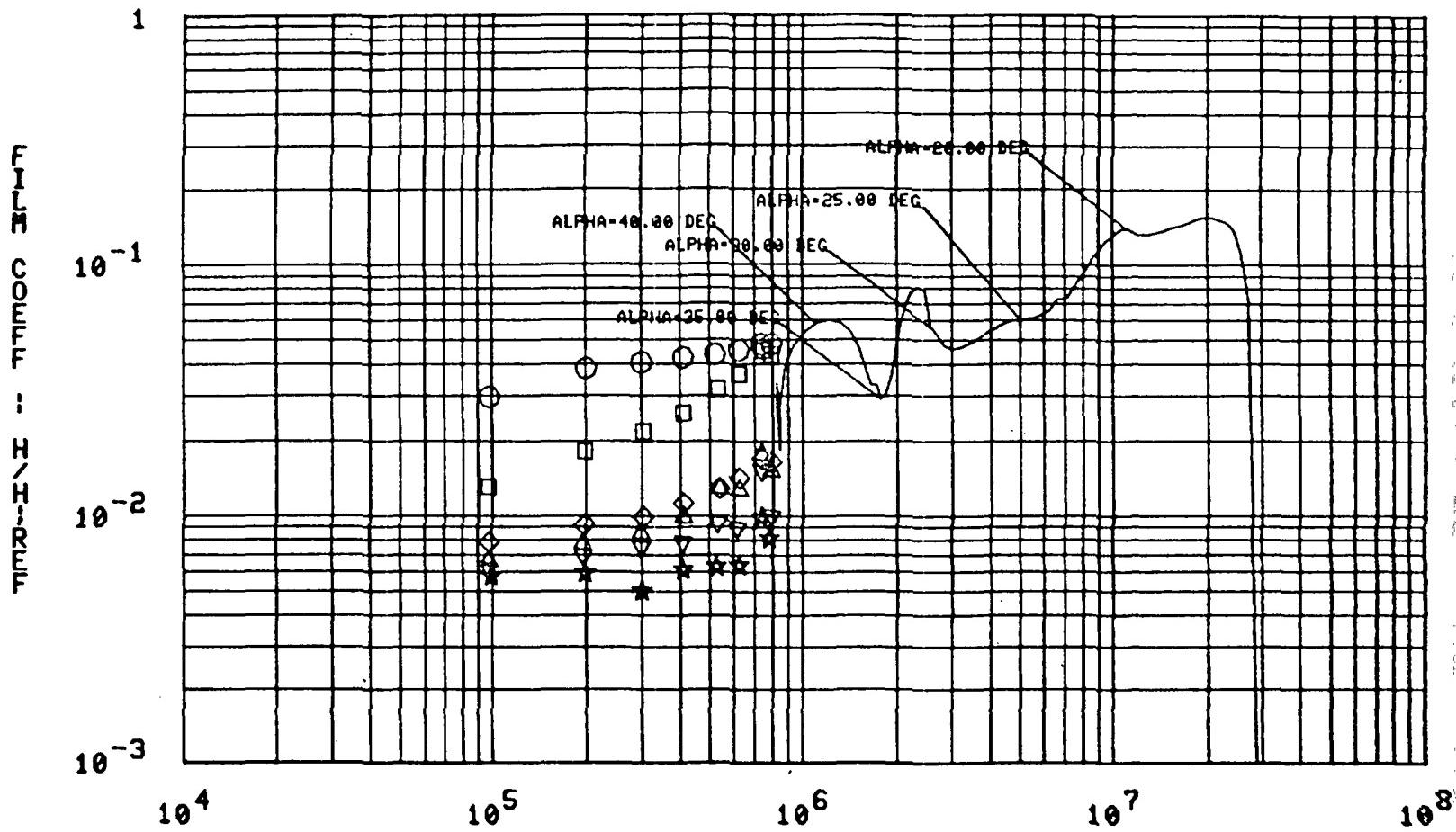
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9905A/H-REF 965-1360 SEC

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B-214

REYNOLDS NUMBER (NS)

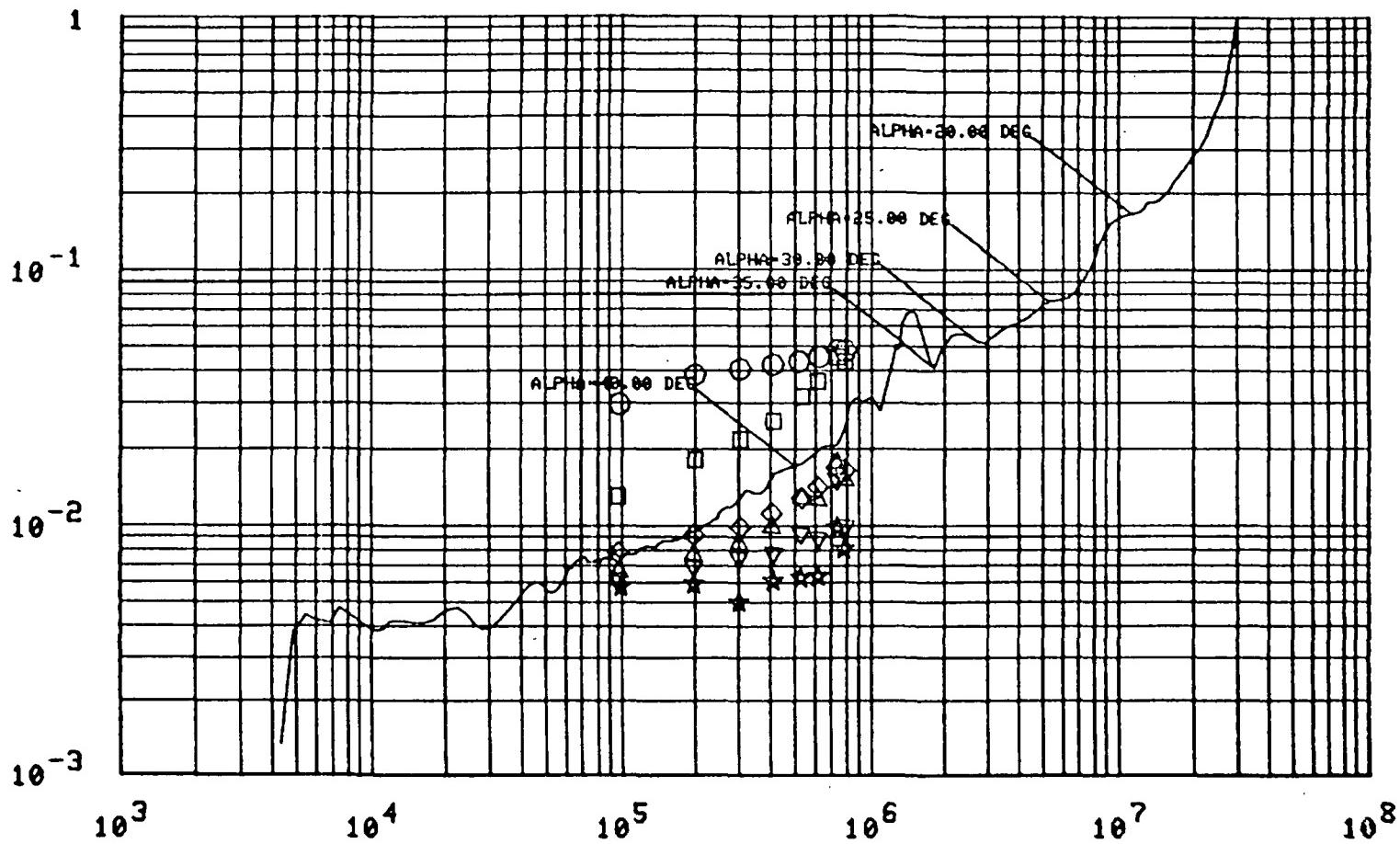
01/18/84
 BASE TIME = 16044423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U87T9905A/H-REF 150-1430 SEC



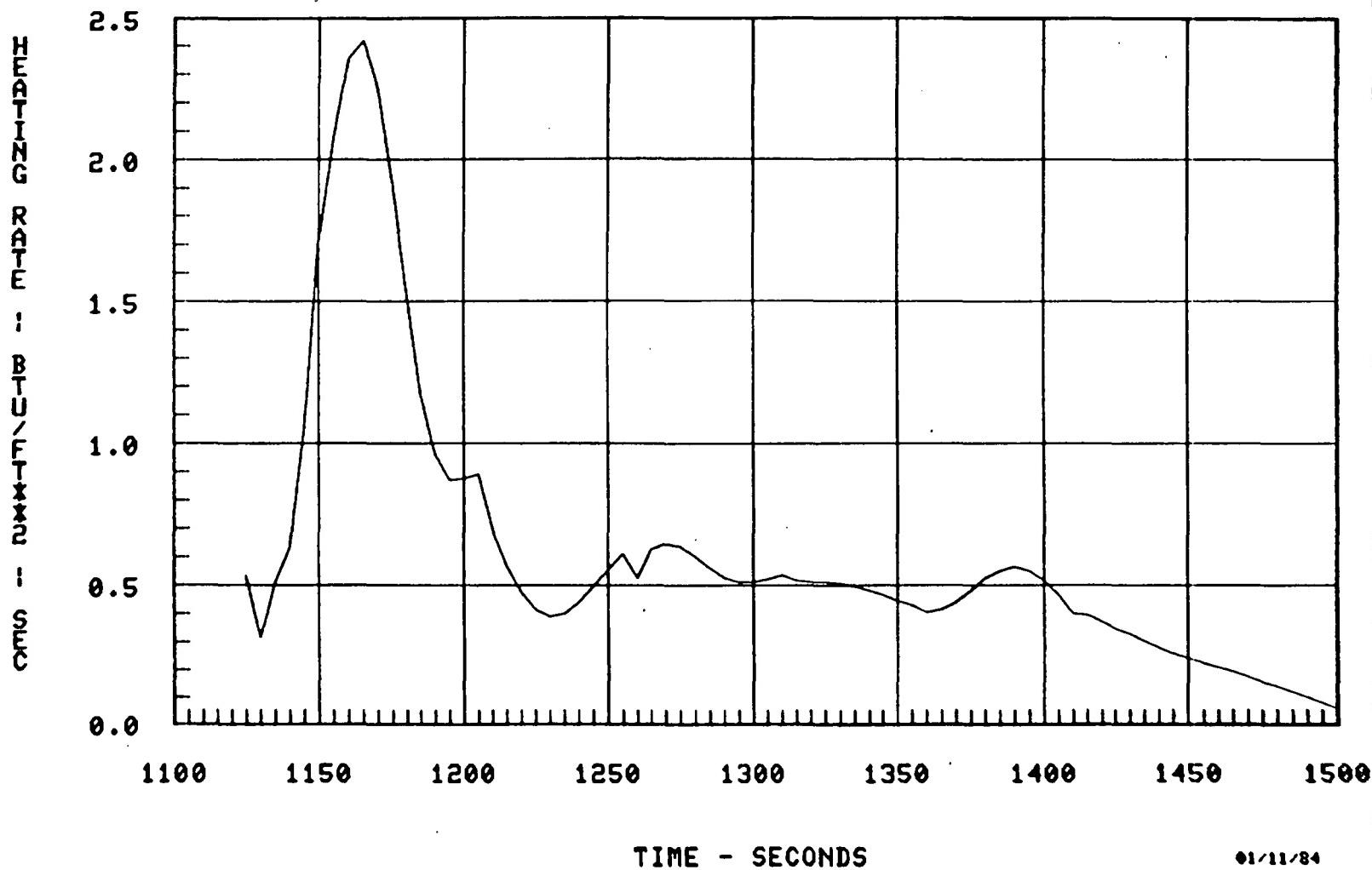
B-215

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 27698591.000 SEC.

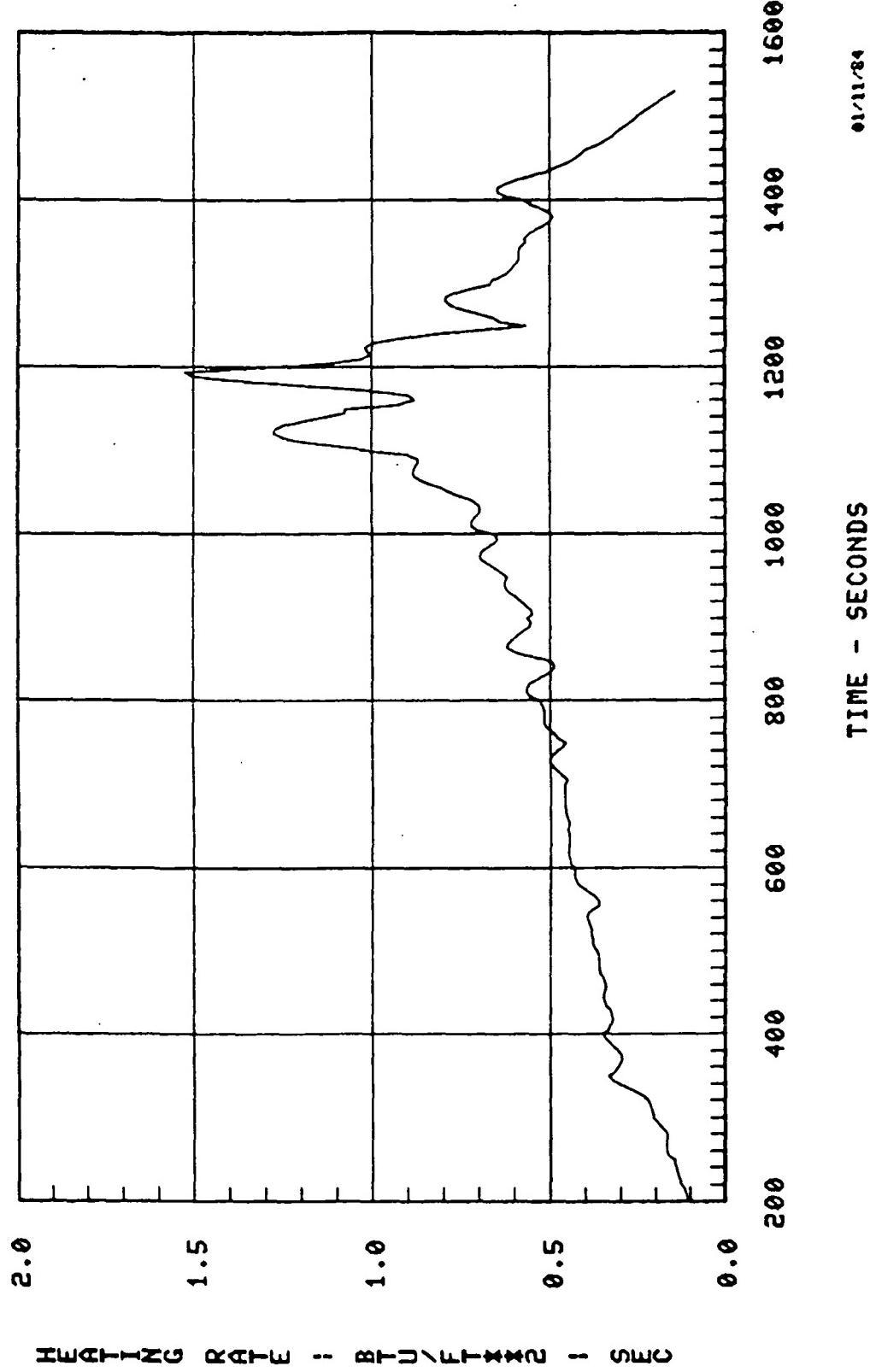
STS-1 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U07T9905A



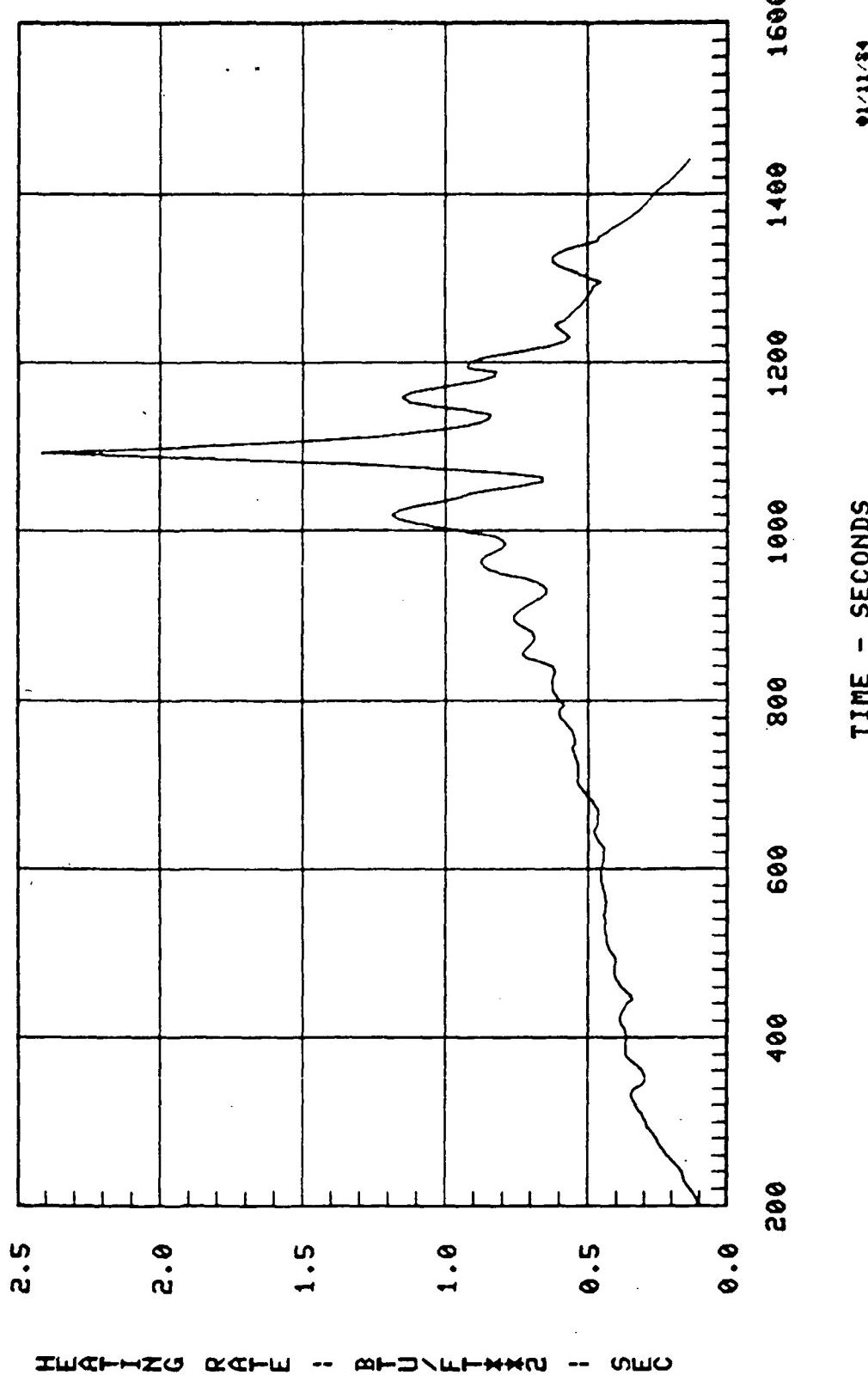
STS-2 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

08779905A



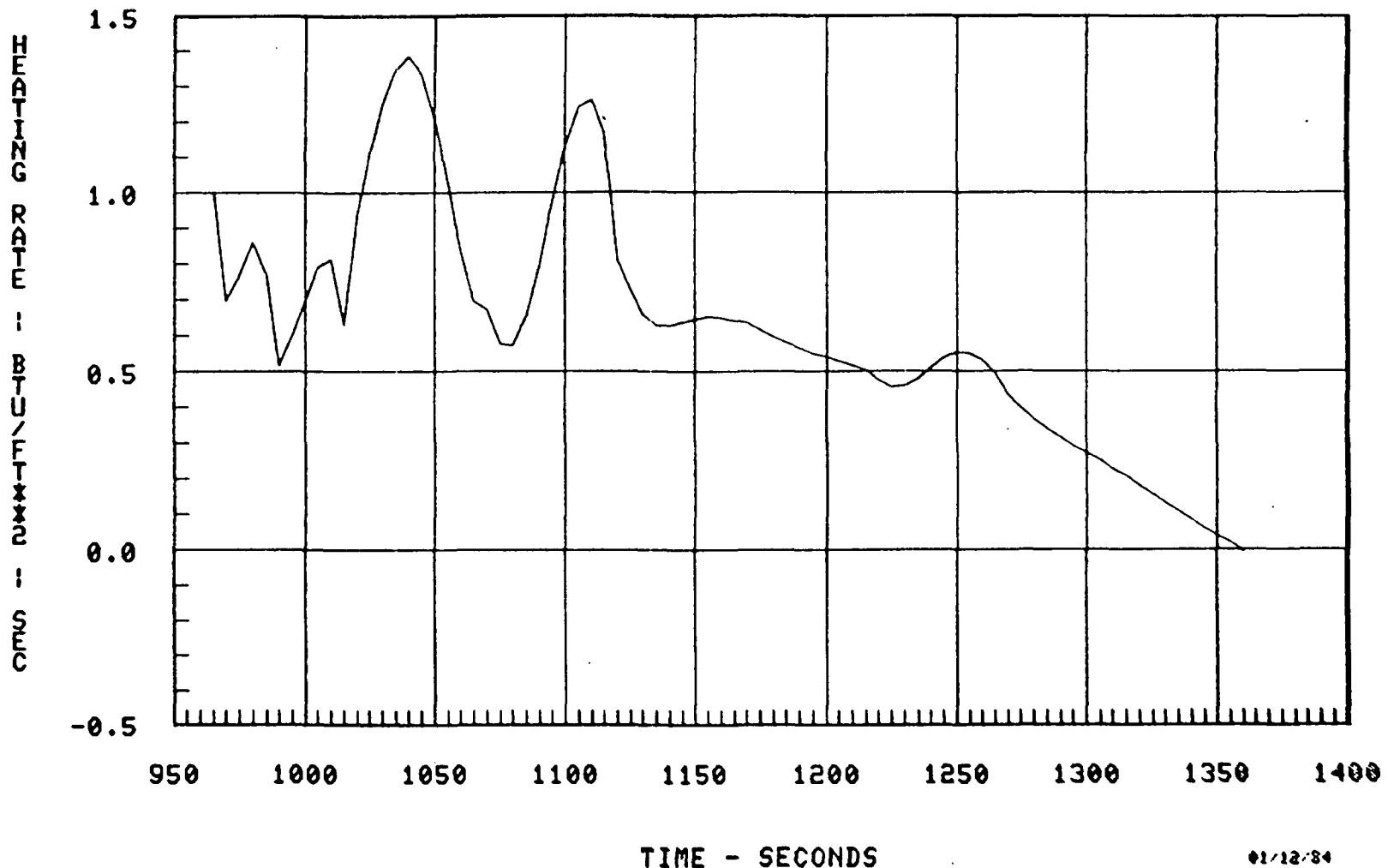
STS-3 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

00779985A



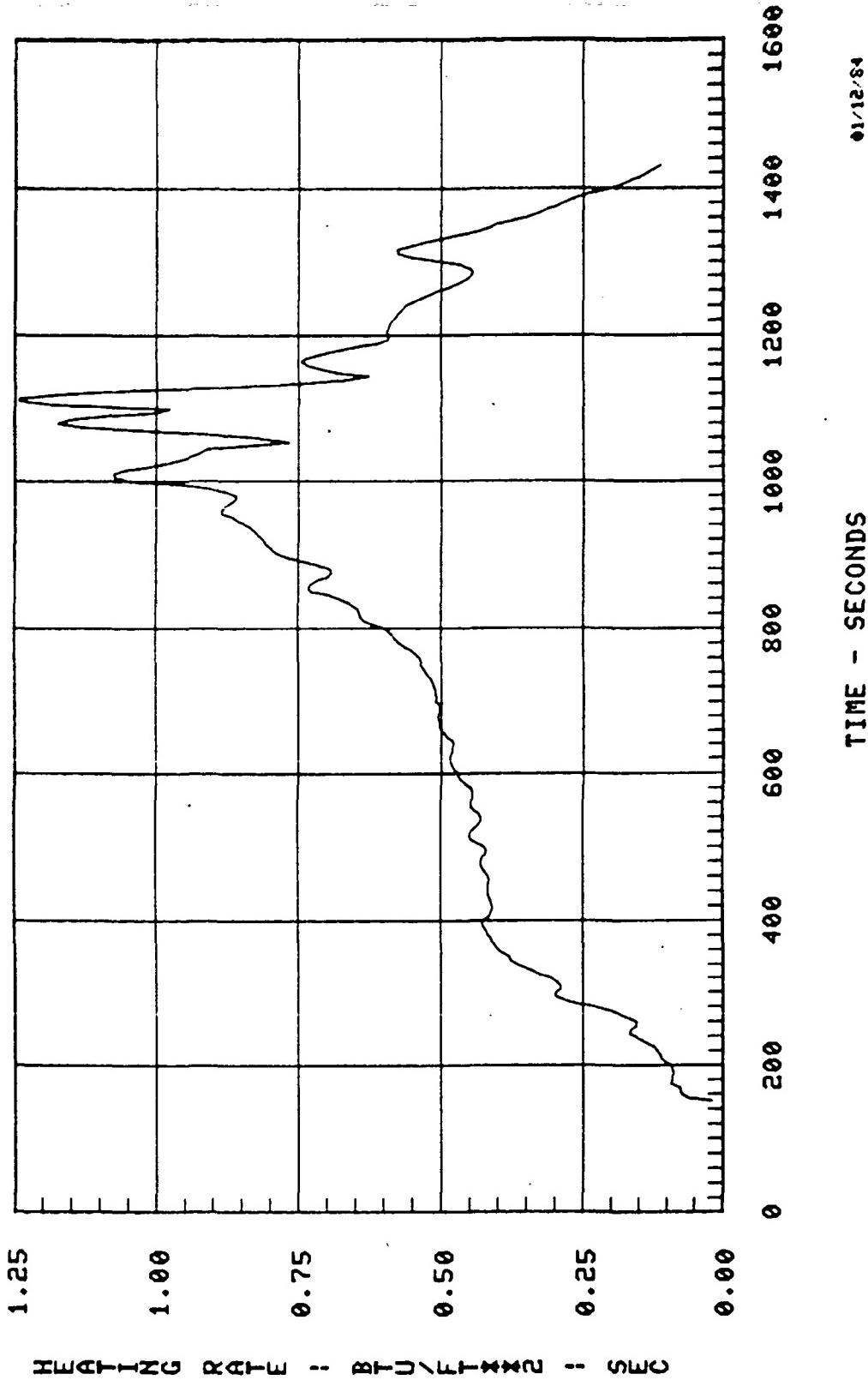
STS-4 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U07T9905A



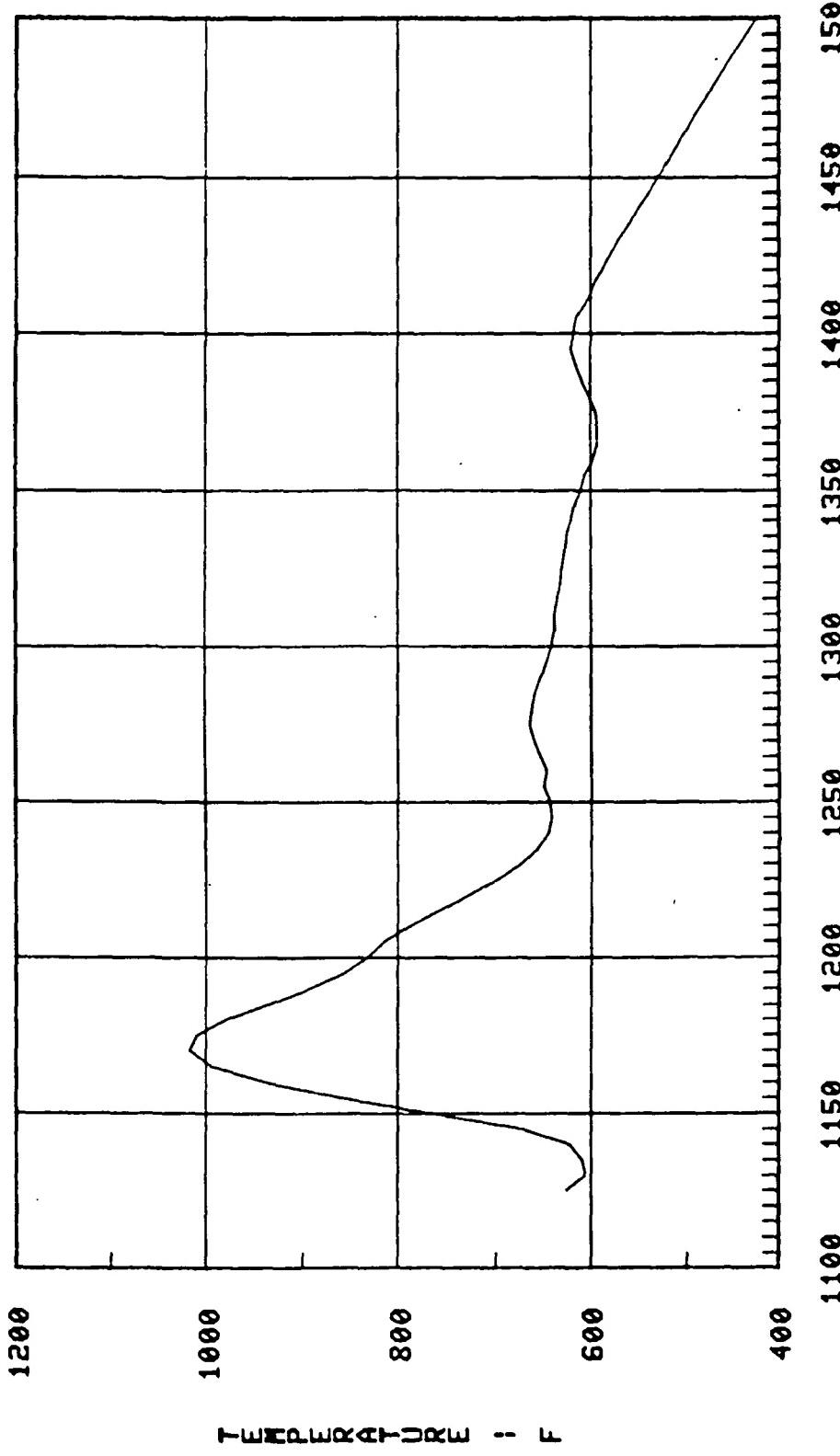
STS-5 (107 FT LENGTH SIDE FUS. X/L=0.55) Z=400

W0715985A



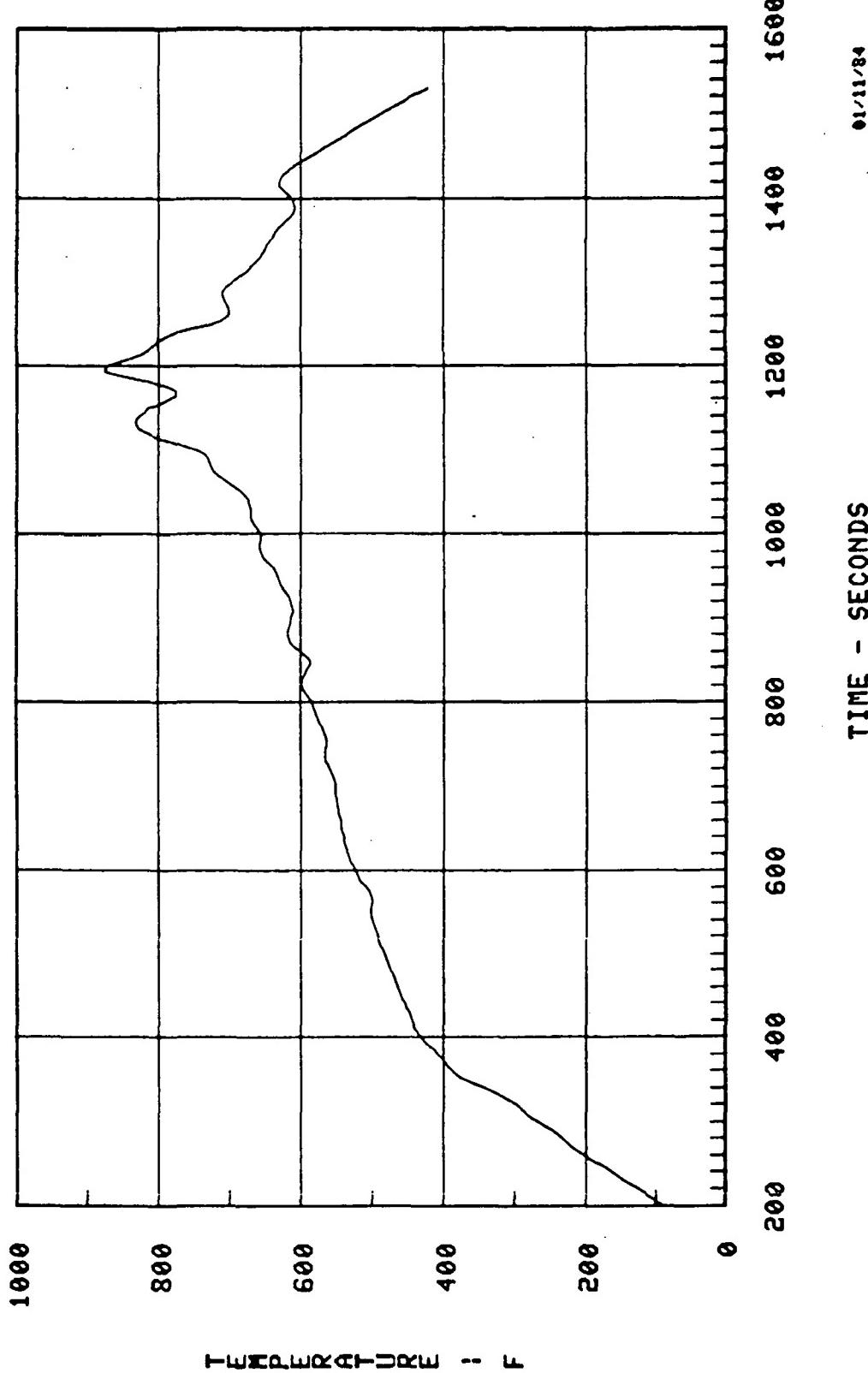
STS-1 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U0719905A



STS-2 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U0779985A



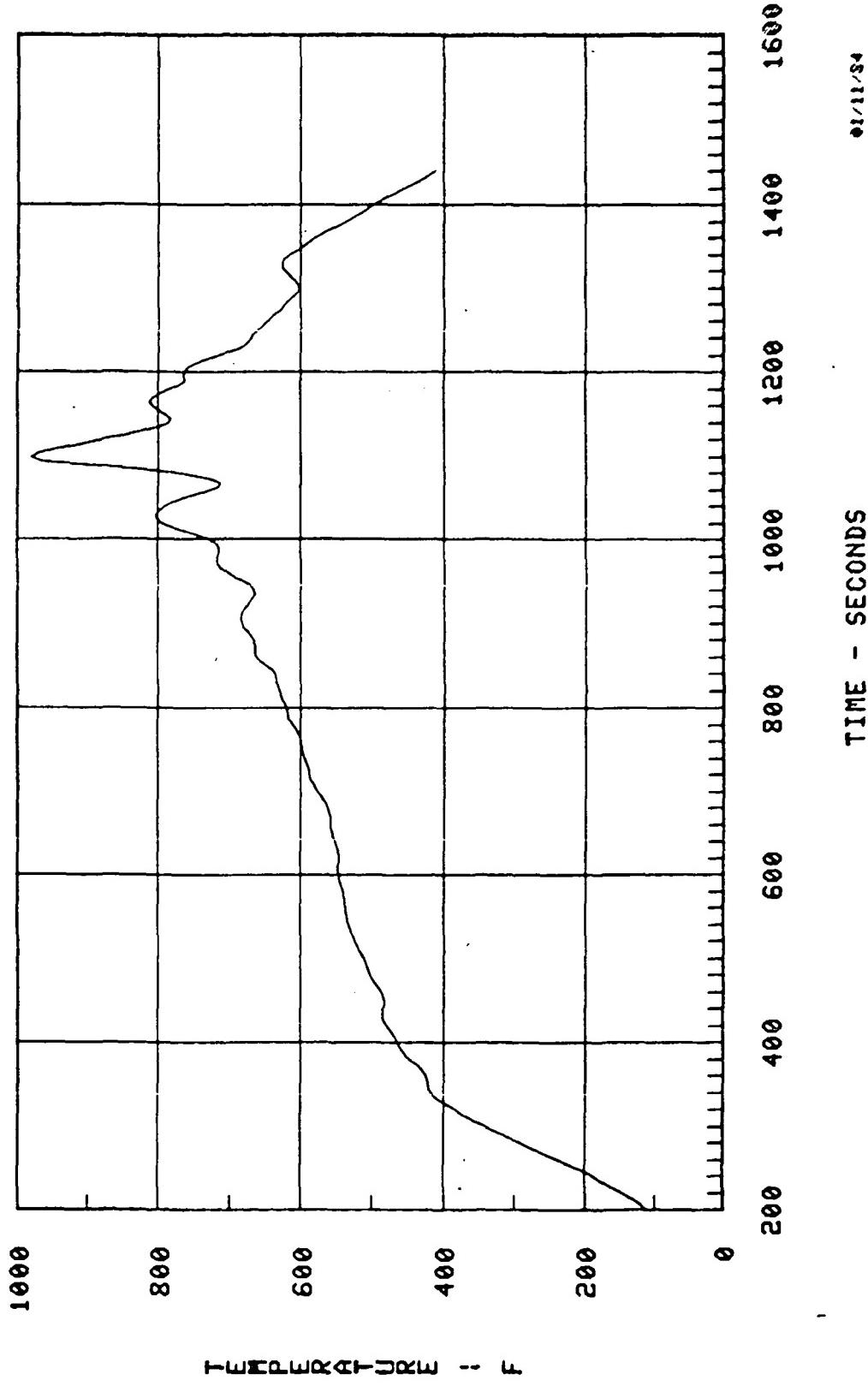
TEMPERATURE -- F

B-222

01/11/84

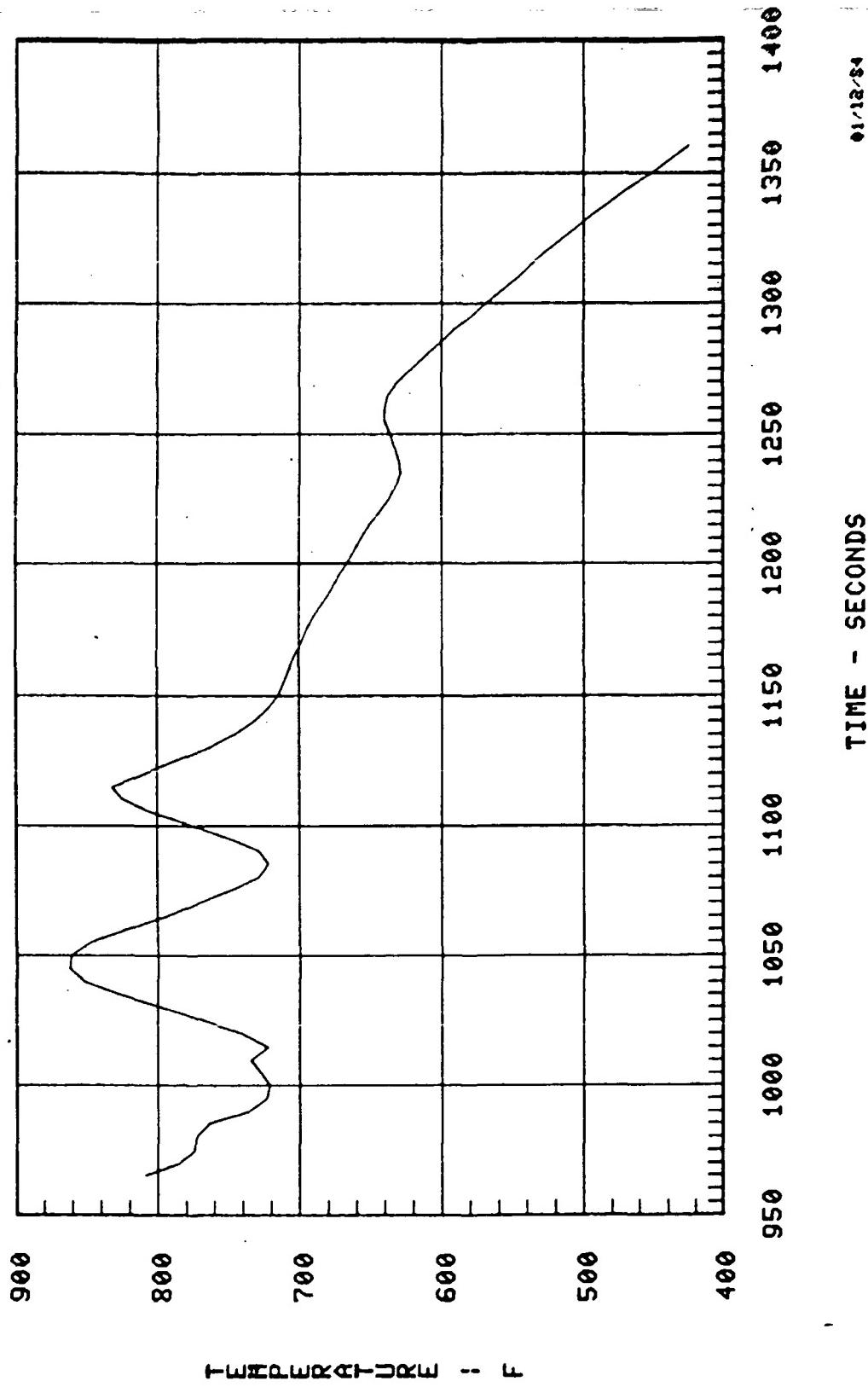
STS-3 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U07T9905A



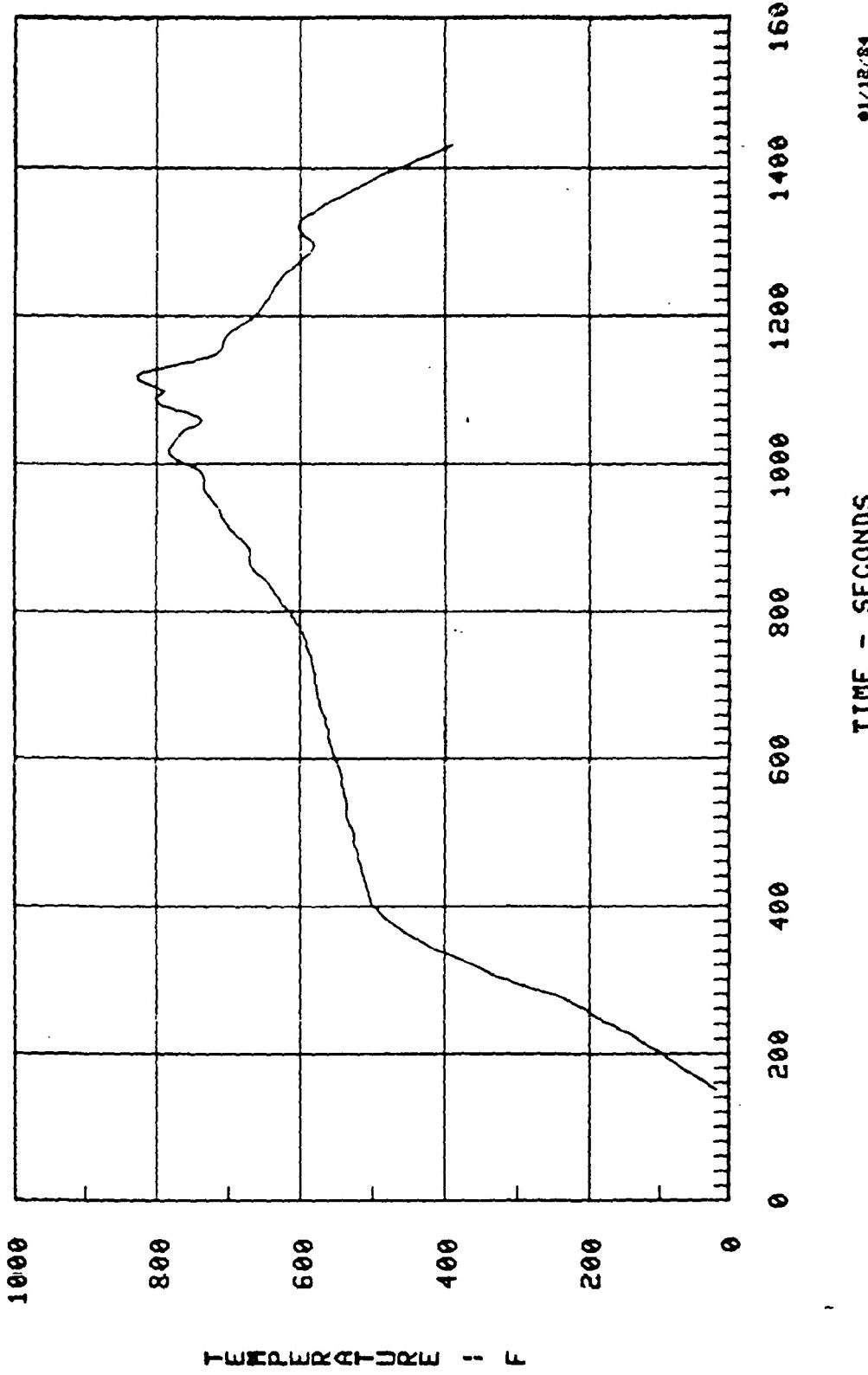
STS-4 (107 FT LENGTH SIDE FLUS X/L=0.55) Z=400

U07T9905A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.55) Z=400

U8719905A

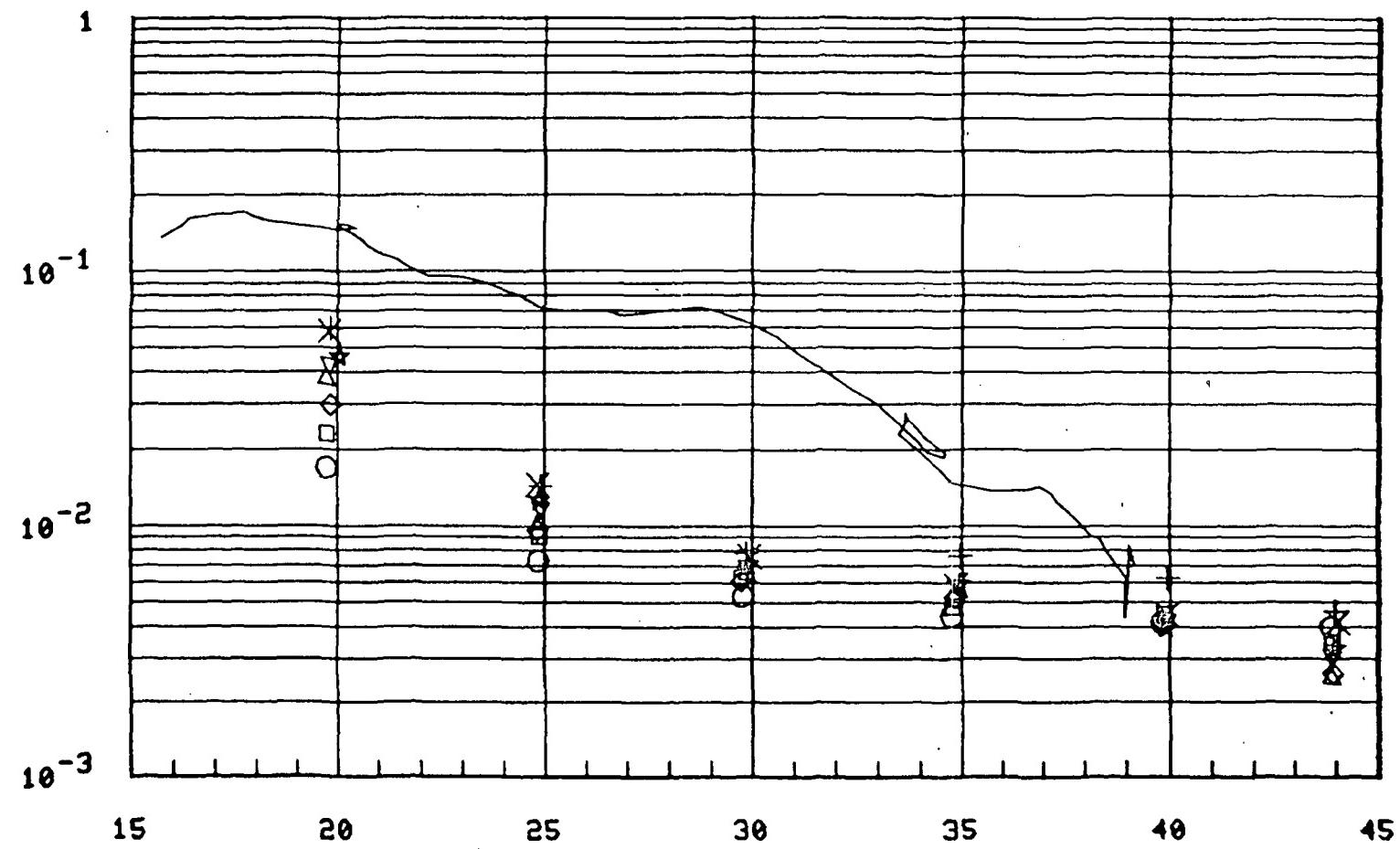


STS-1 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9903A/H-REF 1065-1500 SEC

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B-226

ANGLE-OF-ATTACK - DEG

01/11/84

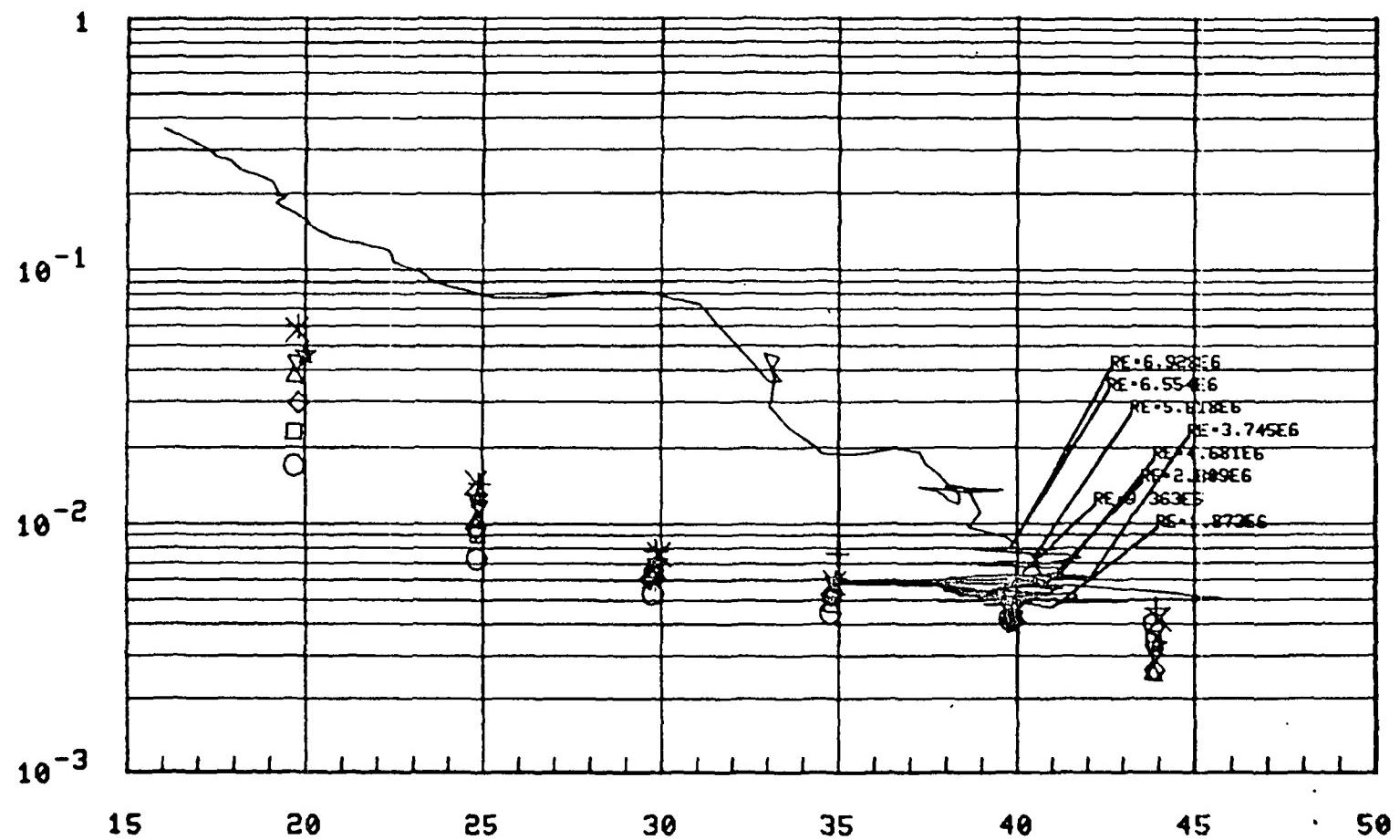
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

V07T9903A/H-REF 200-1530 SEC

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B-227

ANGLE-OF-ATTACK - DEG

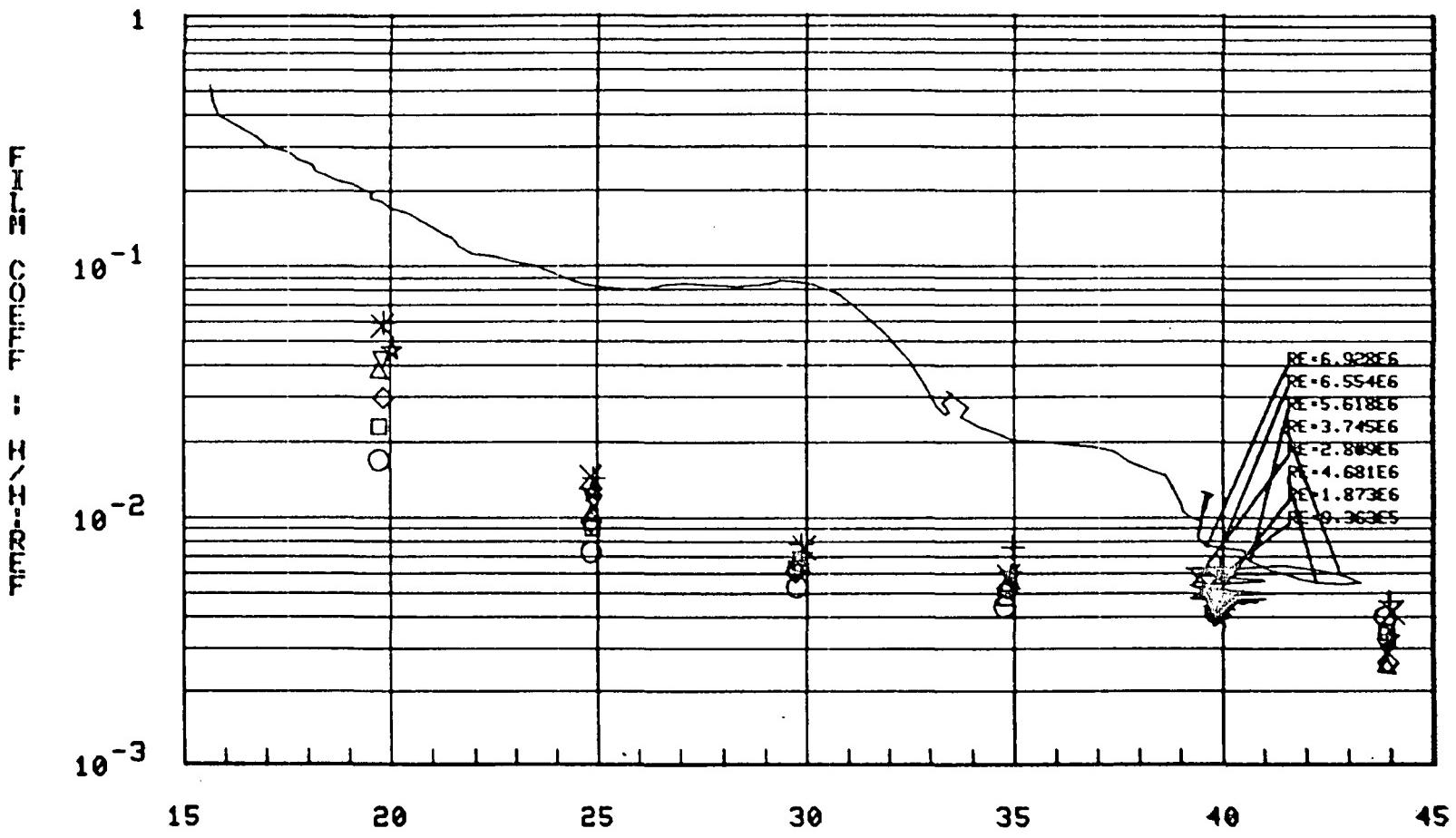
01/11/84
 BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9903A/H-REF 200-1440 SEC

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B-228

ANGLE-OF-ATTACK - DEG

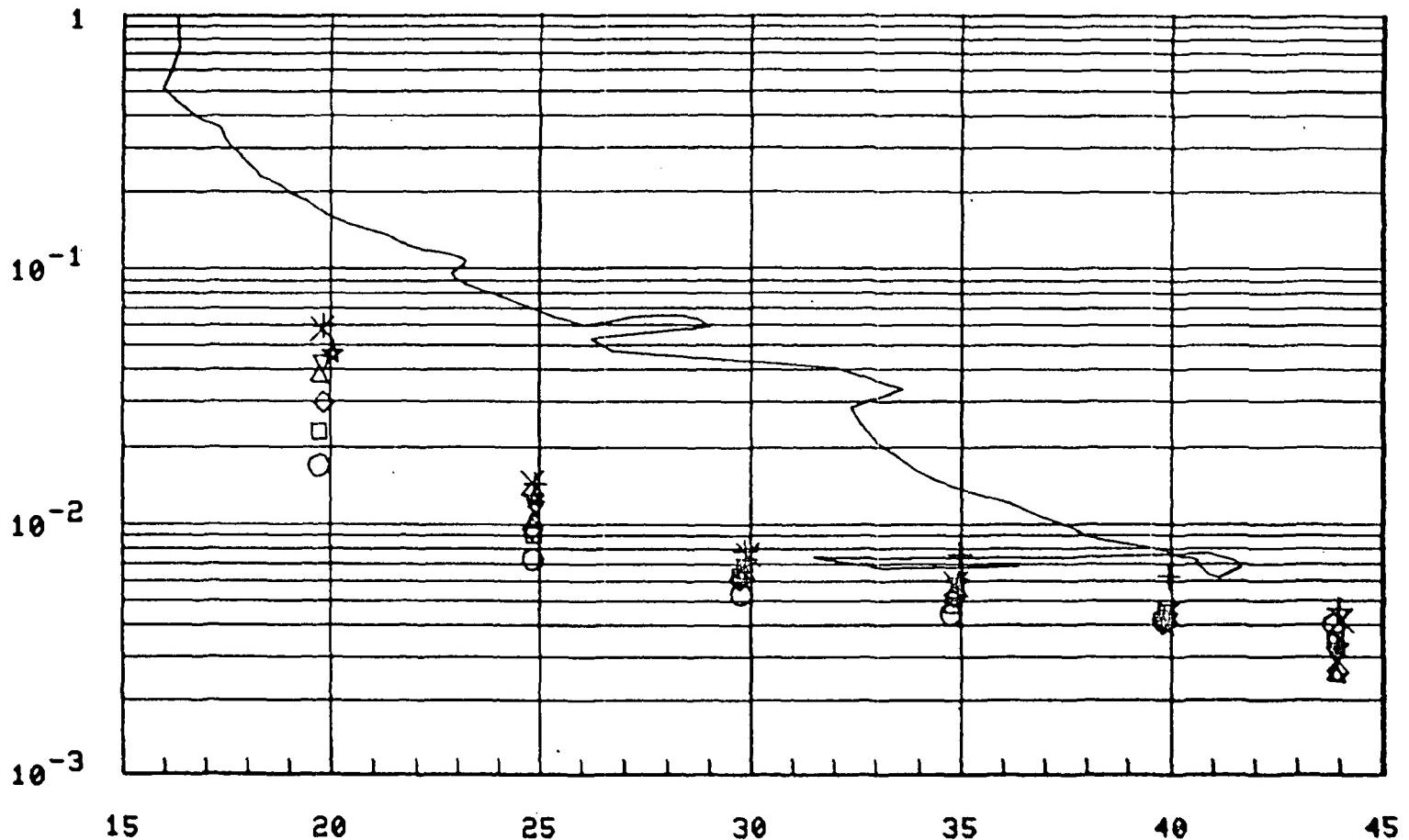
01/11/84
BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

V07T9903A/H-REF 965-1360 SEC

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B-229

ANGLE-OF-ATTACK - DEG

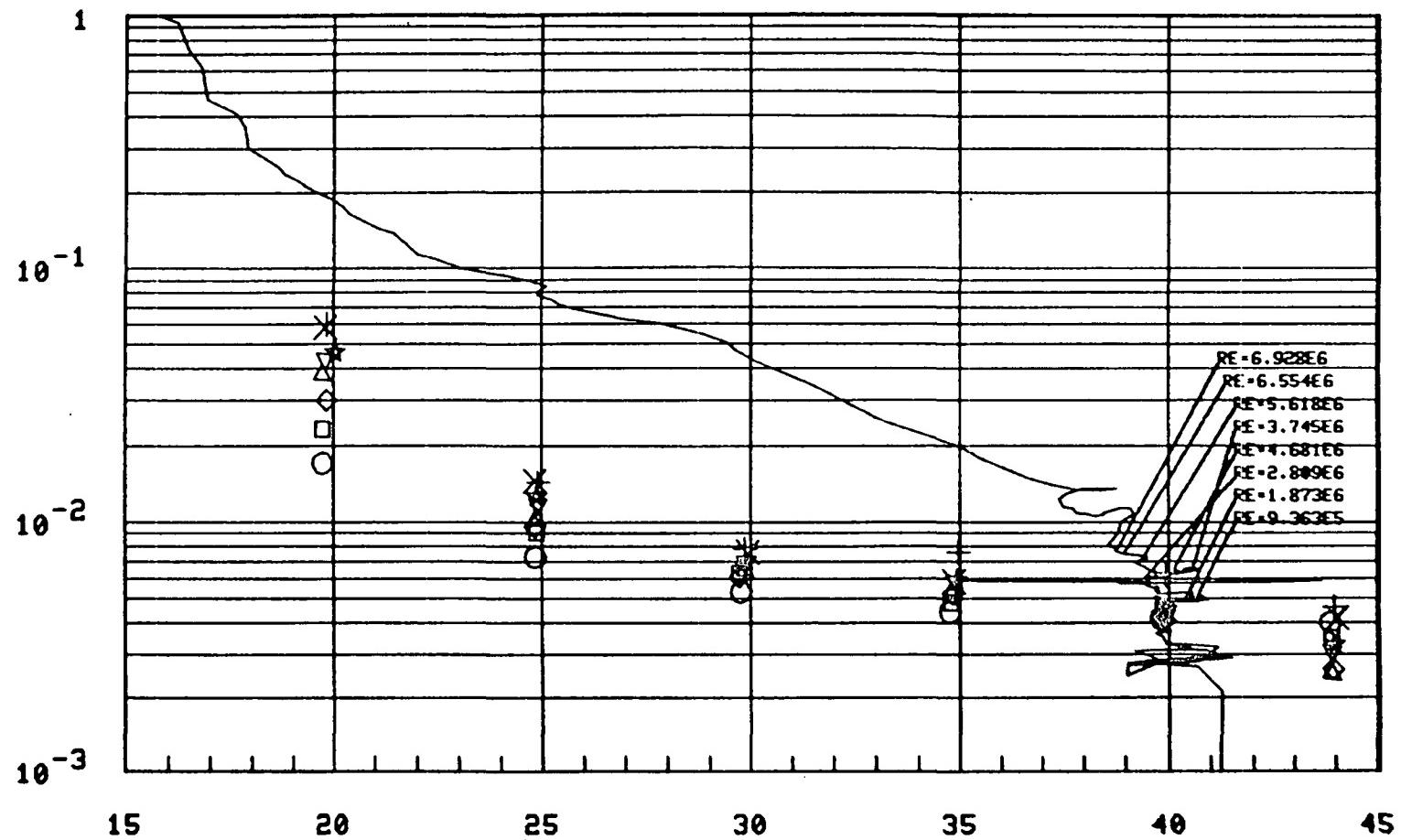
01/18/84
BASE TIME • 16940423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

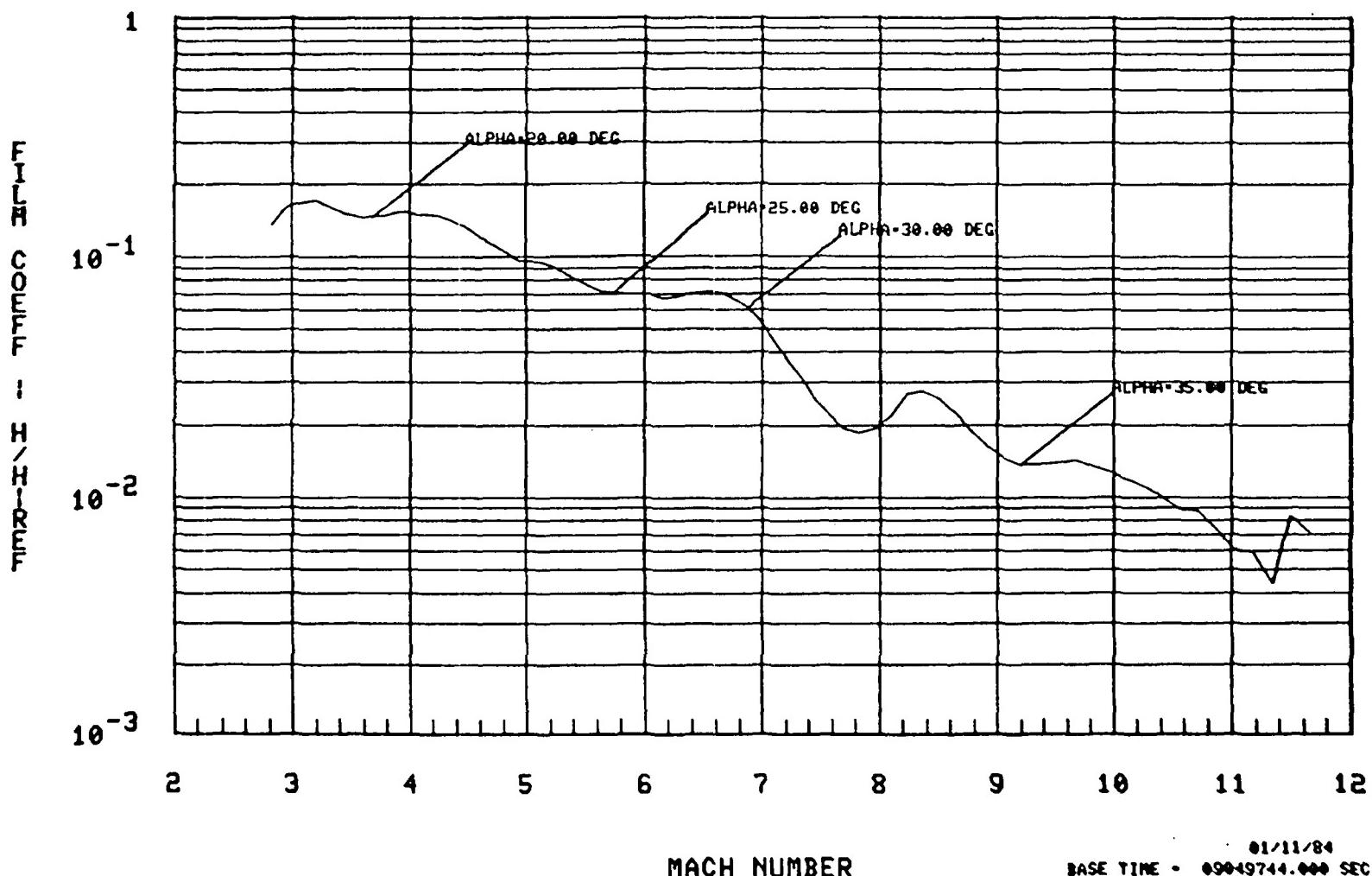
U07T9903A/H-REF 150-1430 SEC

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STS-1 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

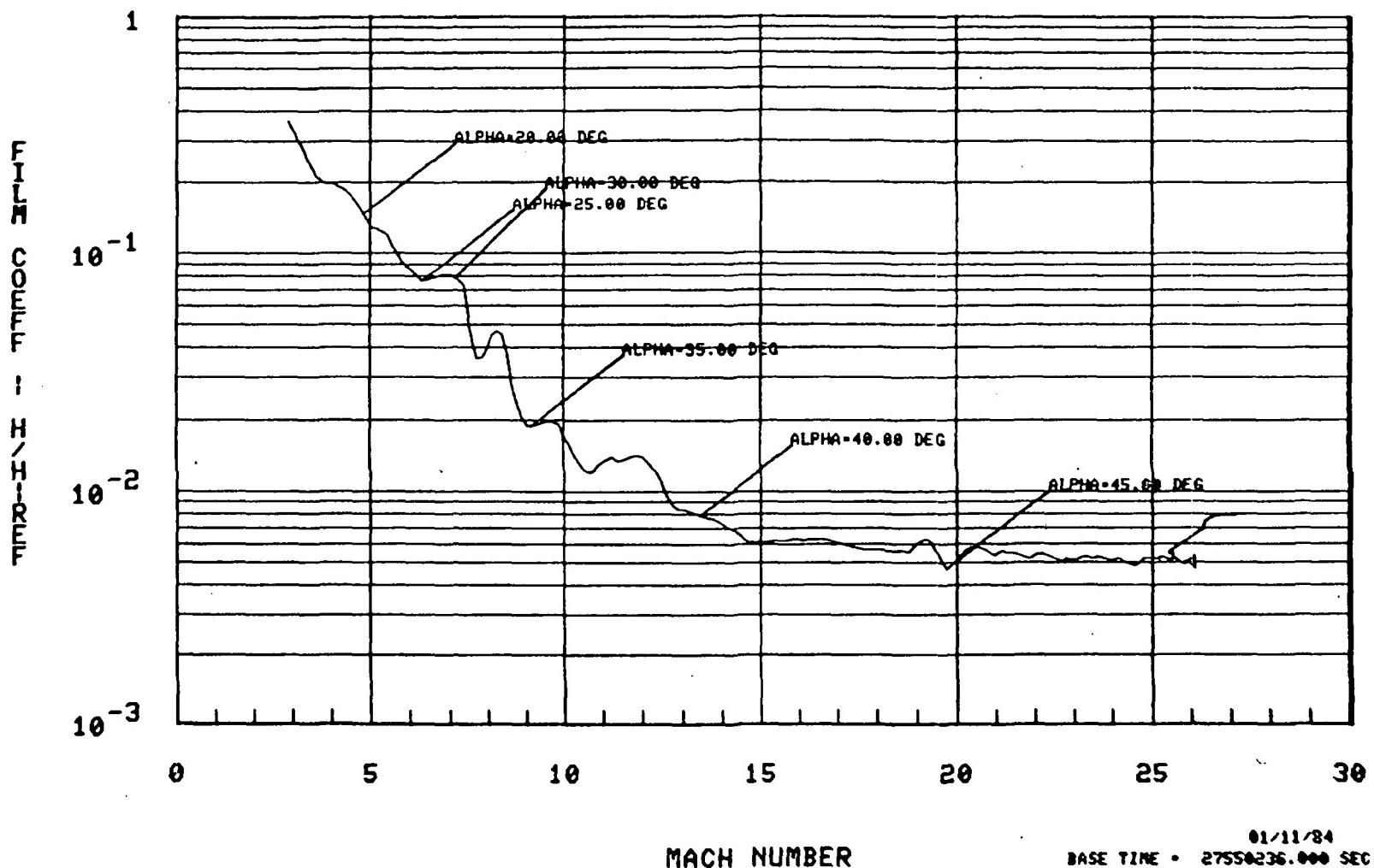
U07T9903A/H-REF 1065-1500 SEC



01/11/84
BASE TIME • 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

U07T9903A/H-REF 200-1530 SEC



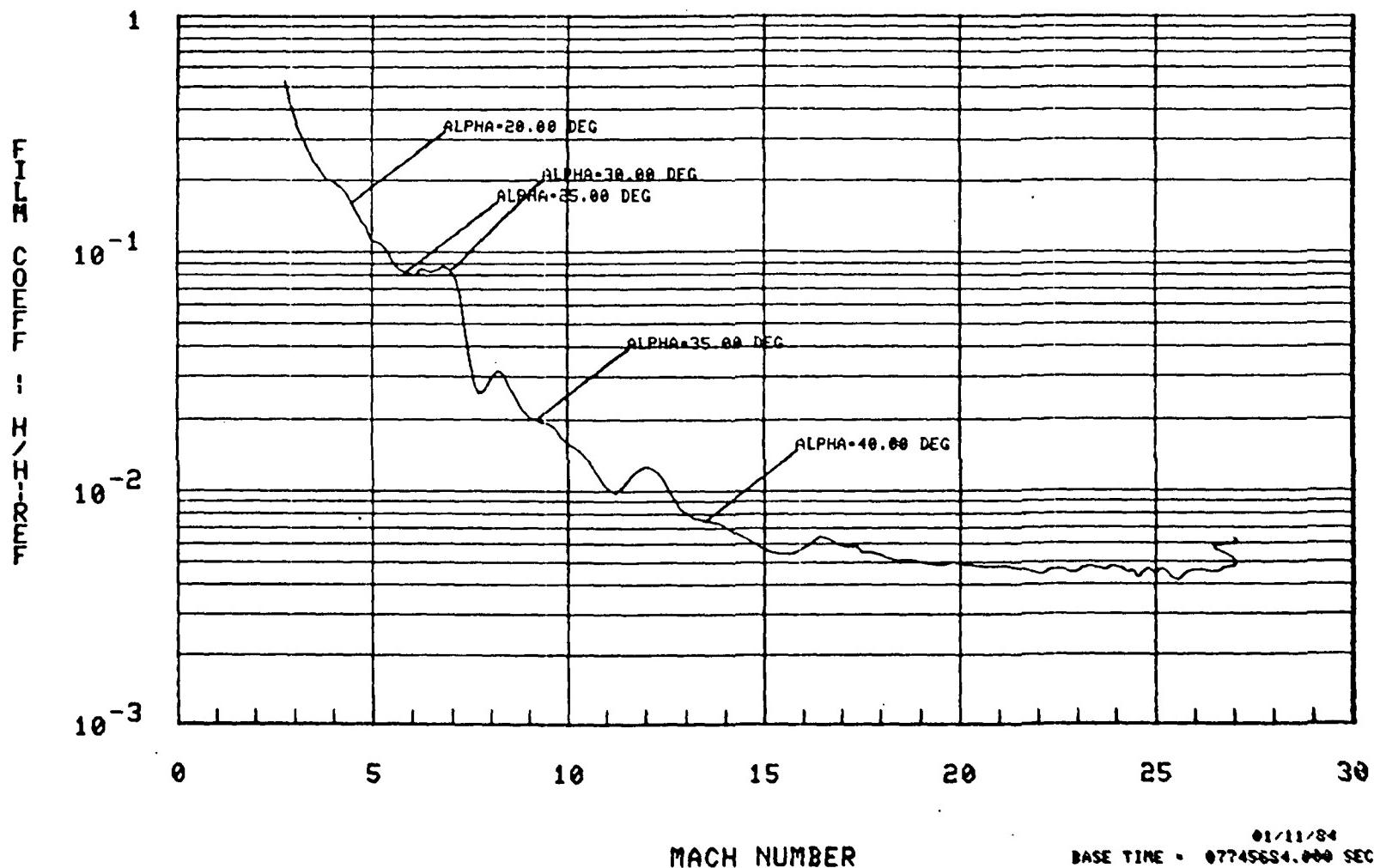
B-232

MACH NUMBER

01/11/84
BASE TIME • 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

U07T9903A/H-REF 200-1440 SEC

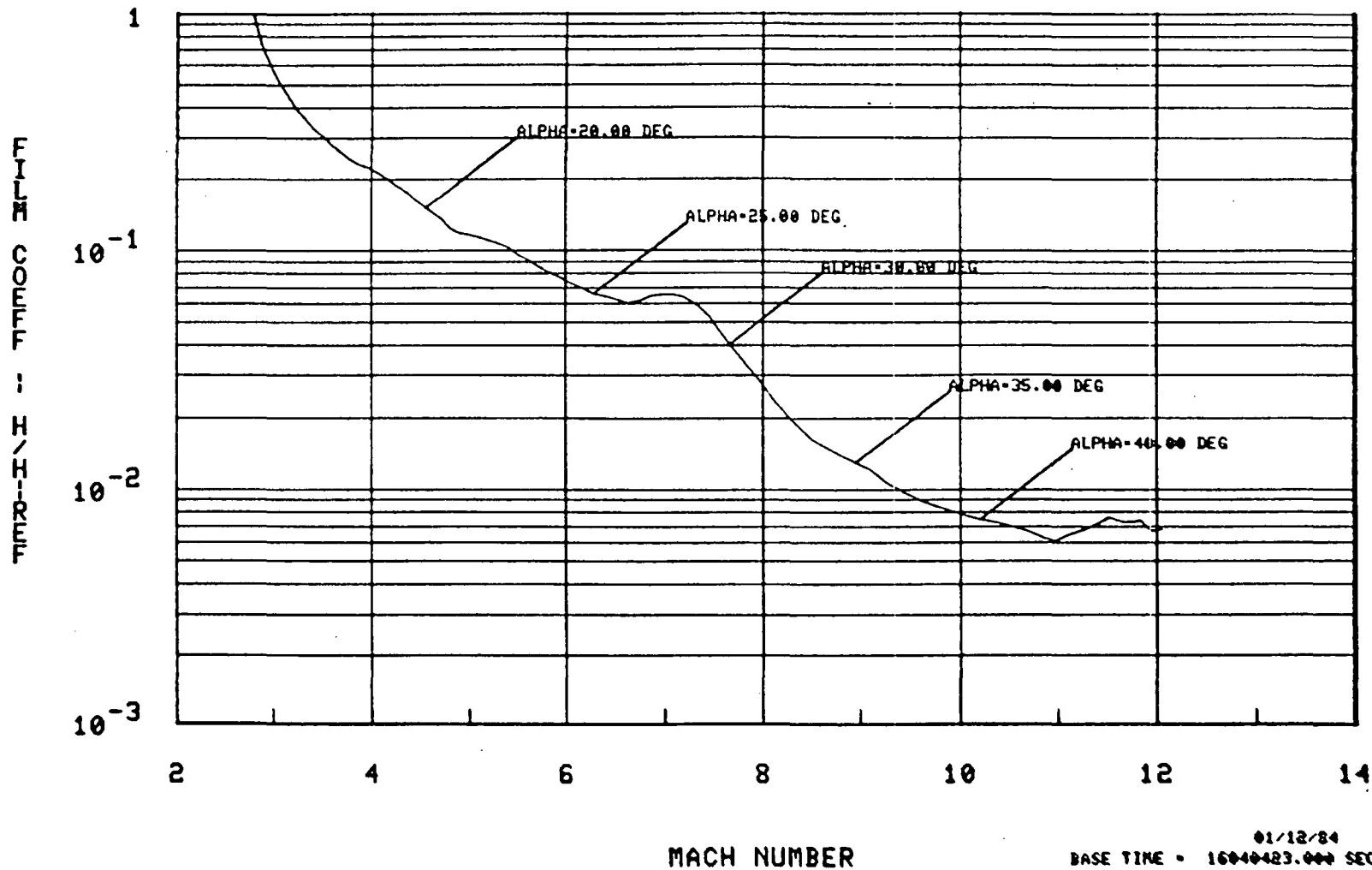


01/11/84

BASE TIME = 07745684.000 SEC.

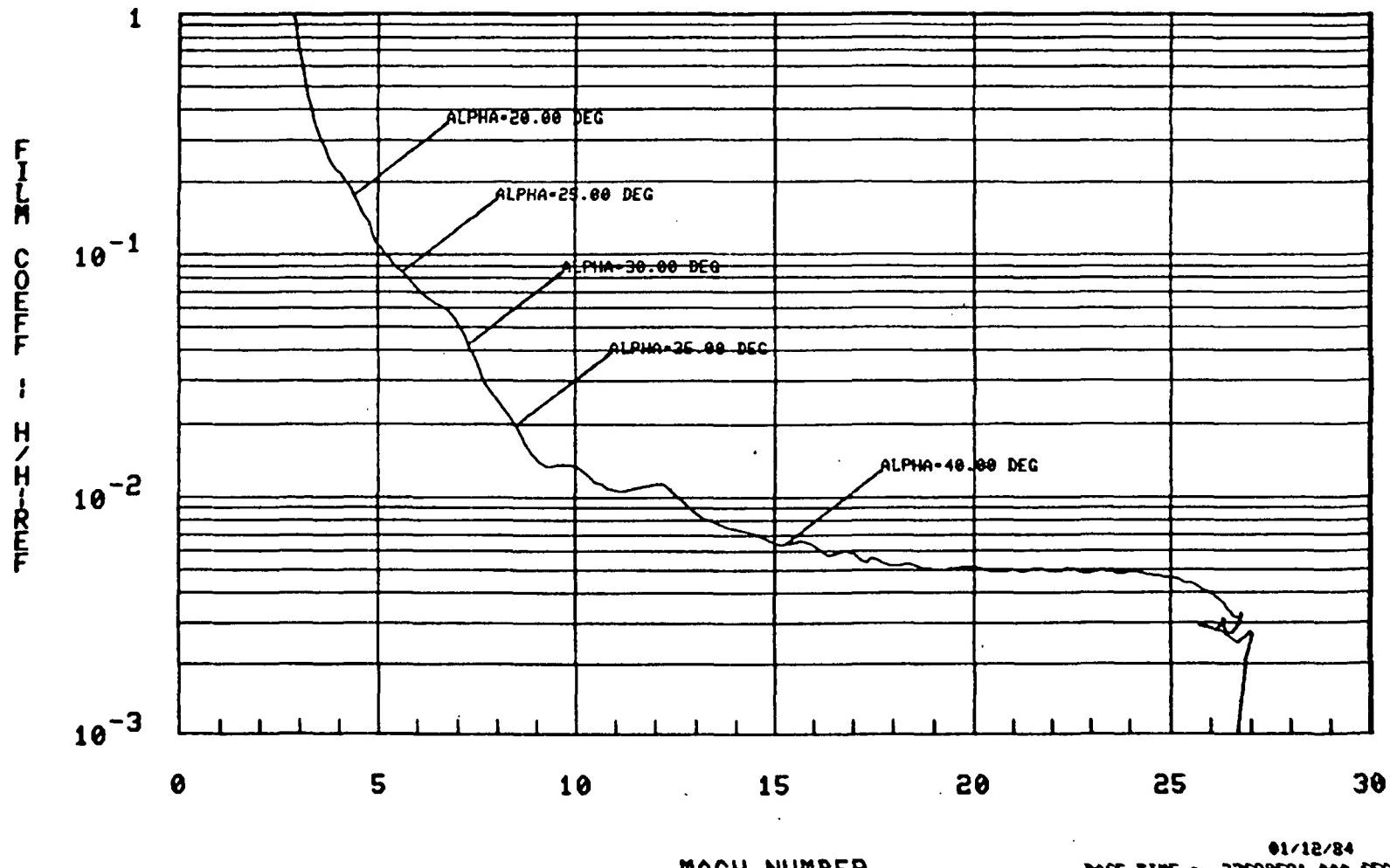
STS-4 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

U07T9903A/H-REF 965-1360 SEC



STS-5 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

U07T9903A/H-REF 150-1430 SEC



01/12/84
MACH NUMBER

BASE TIME = 27698591.000 SEC.

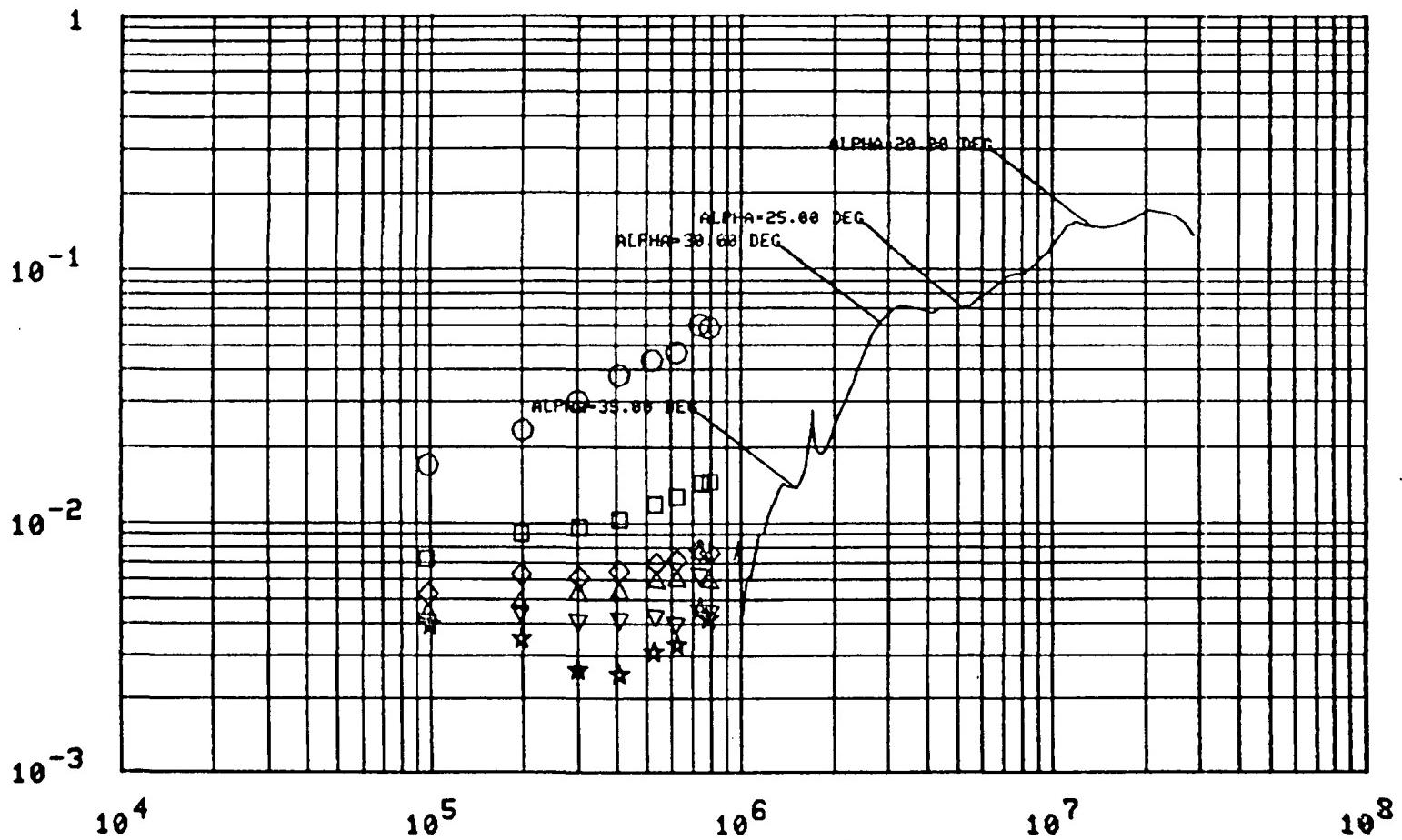
STS-1 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

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U07T9903A/H-REF 1065-1500 SEC

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

TIME COMM - H\H\H\H\H\H\H



B-236

REYNOLDS NUMBER (NS)

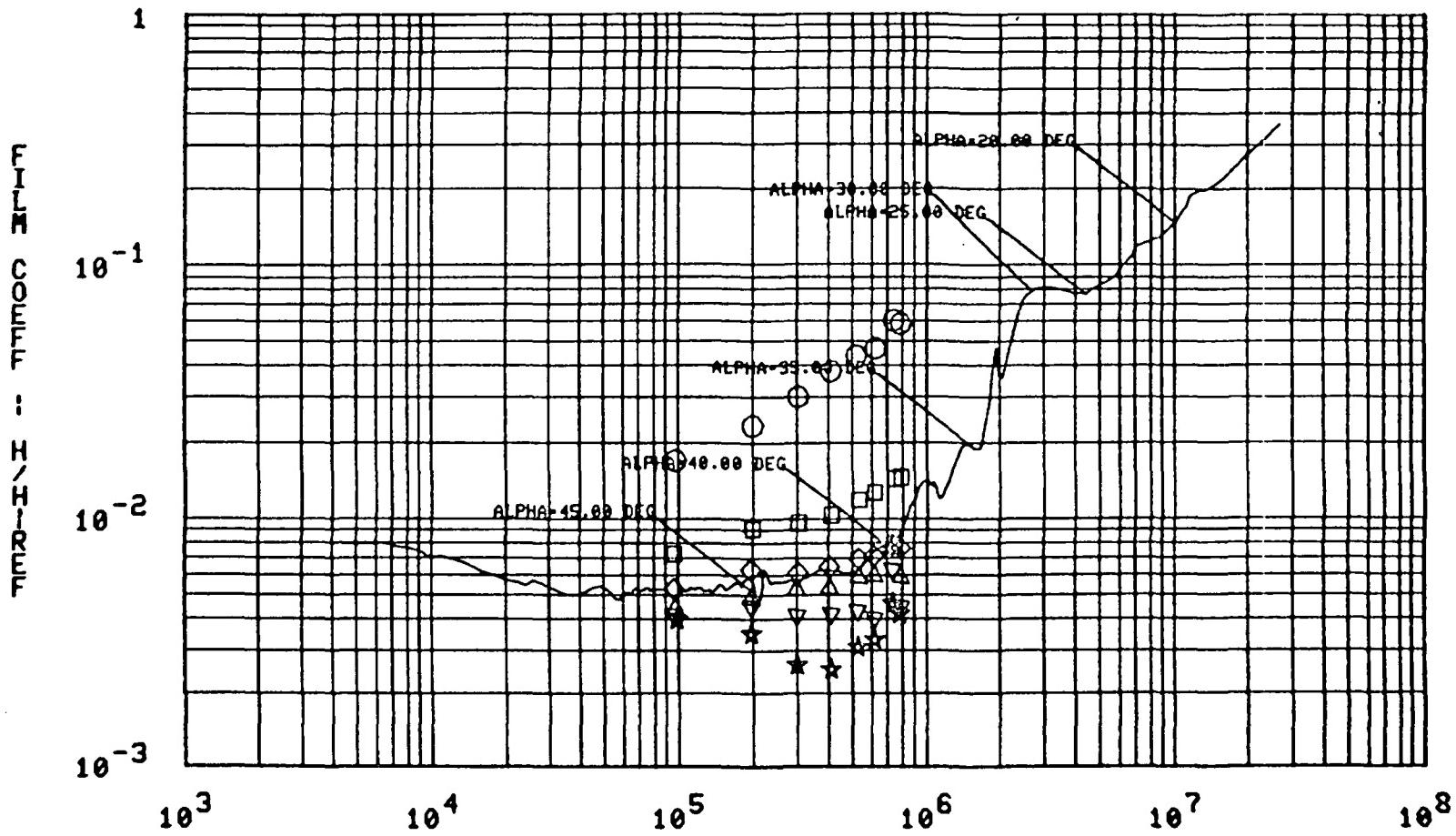
01/11/84
 BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U87T9903A/H-REF 200-1530 SEC



B-237

REYNOLDS NUMBER (NS)

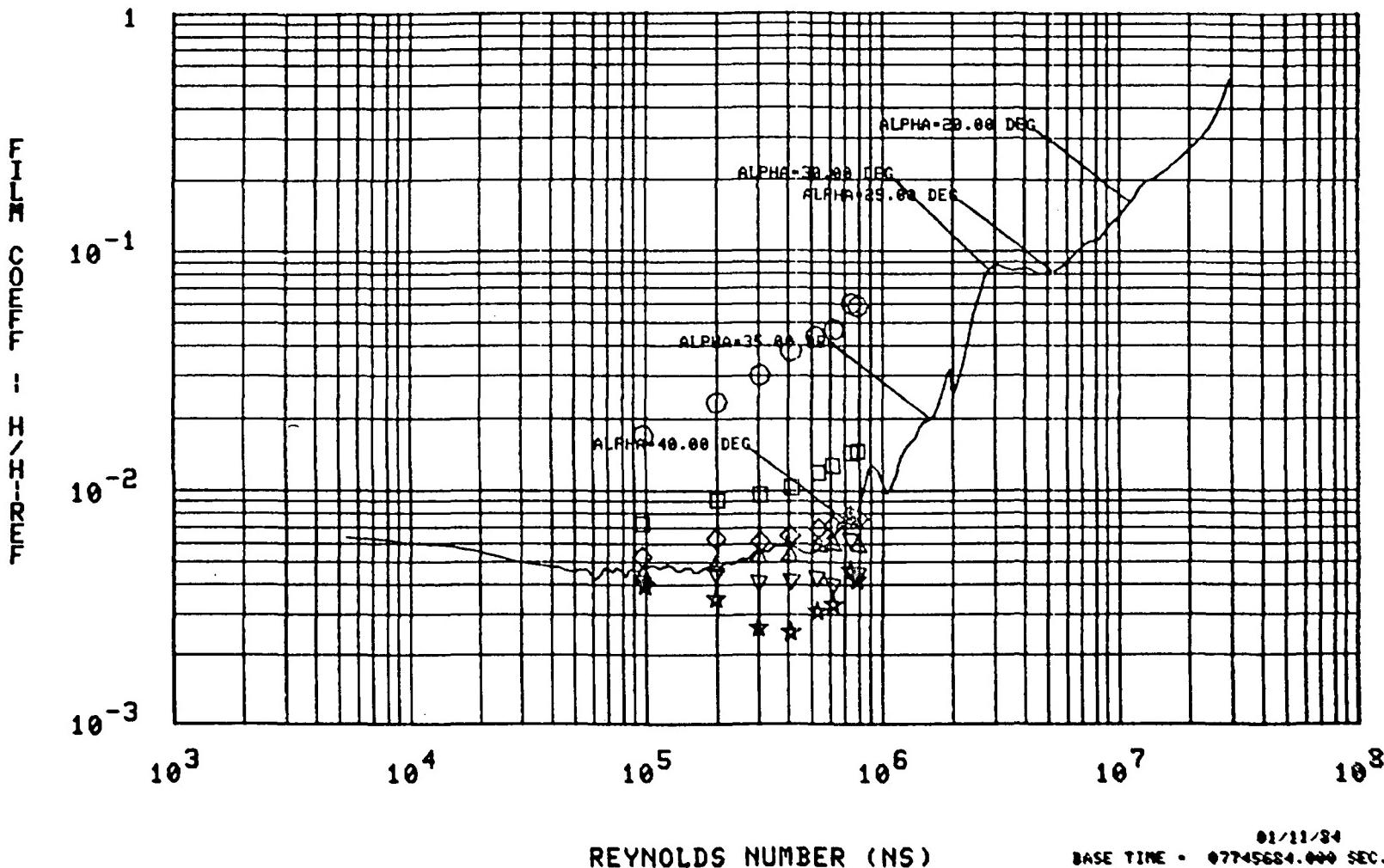
01/11/84
 BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U67T9903A/H-REF 200-1440 SEC



B-238

REYNOLDS NUMBER (NS)

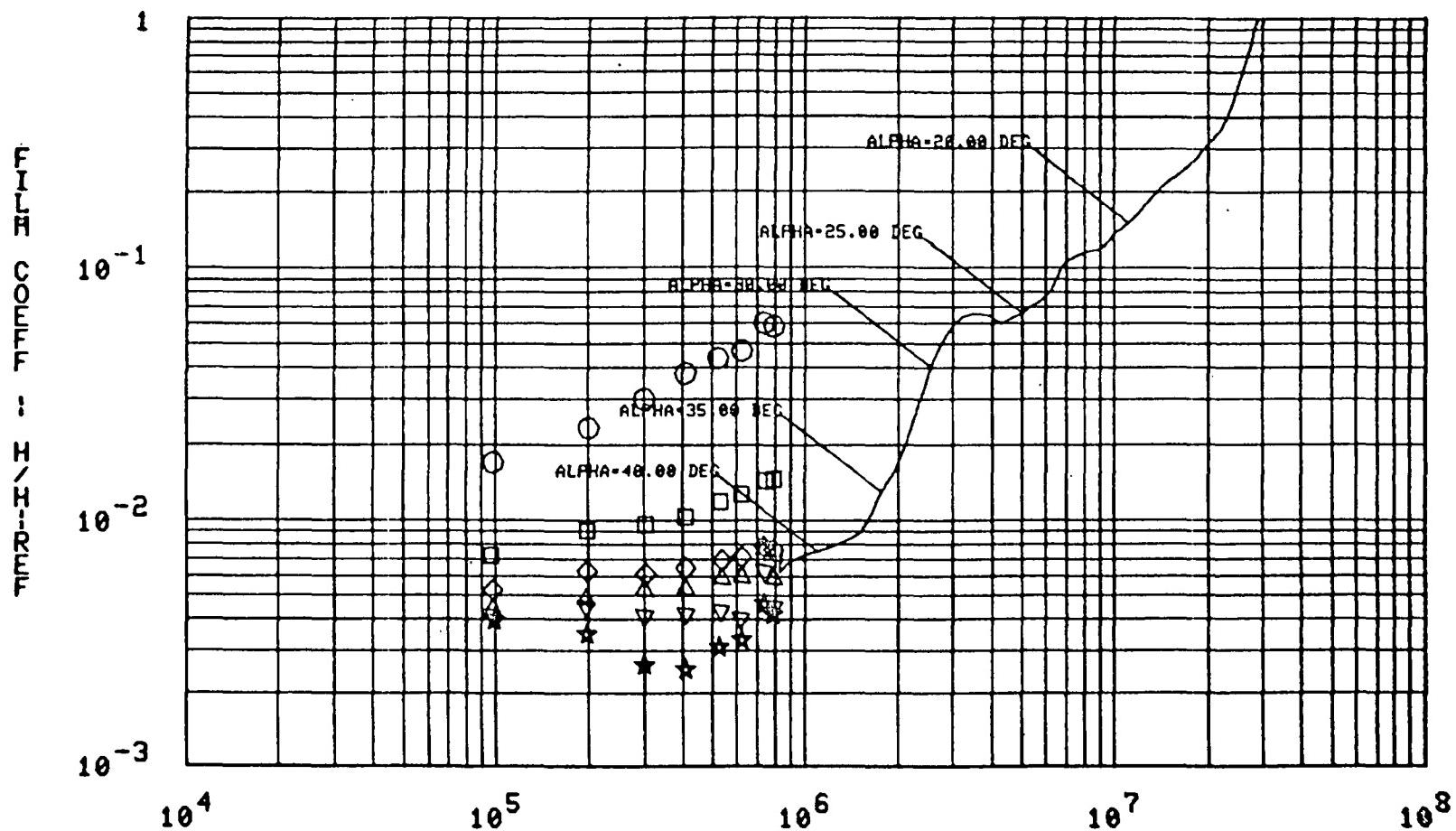
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9903A/H-REF 965-13E0 SEC

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B-239

REYNOLDS NUMBER (NS)

01/18/84

BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

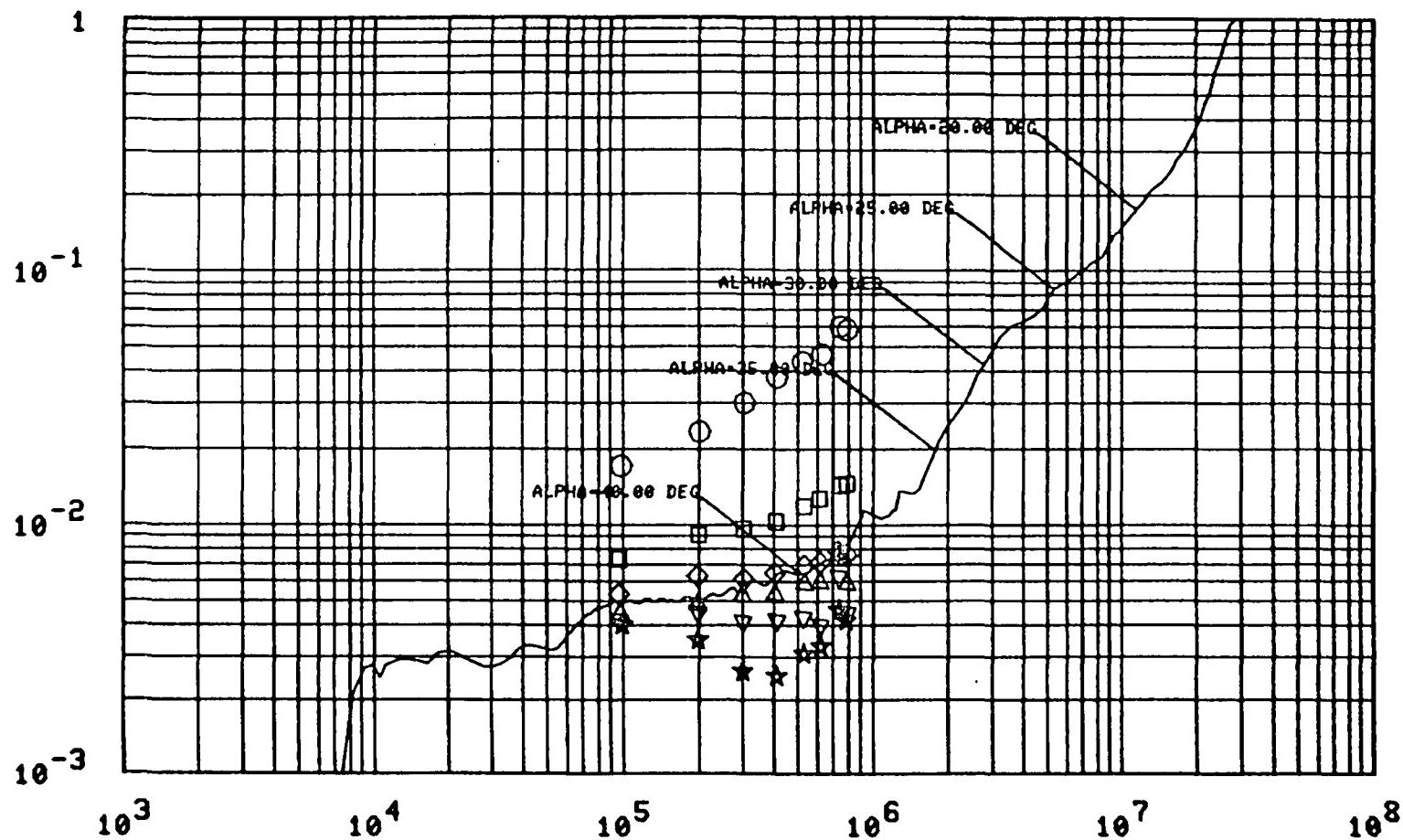
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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9903A/H-REF 150-1430 SEC

LINE CONVENTION - H/H-REF

B-240

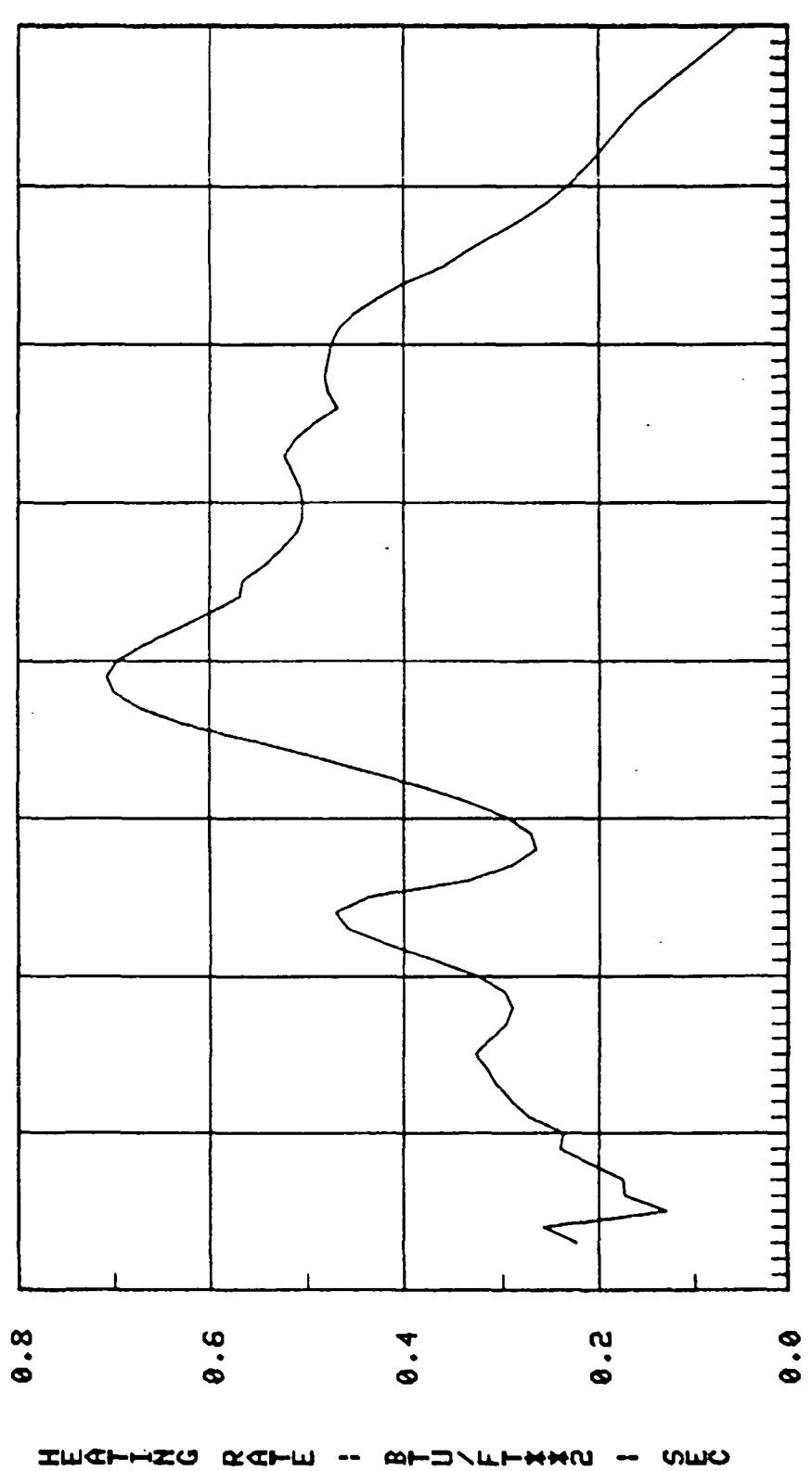


REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 87698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

U07T9903A

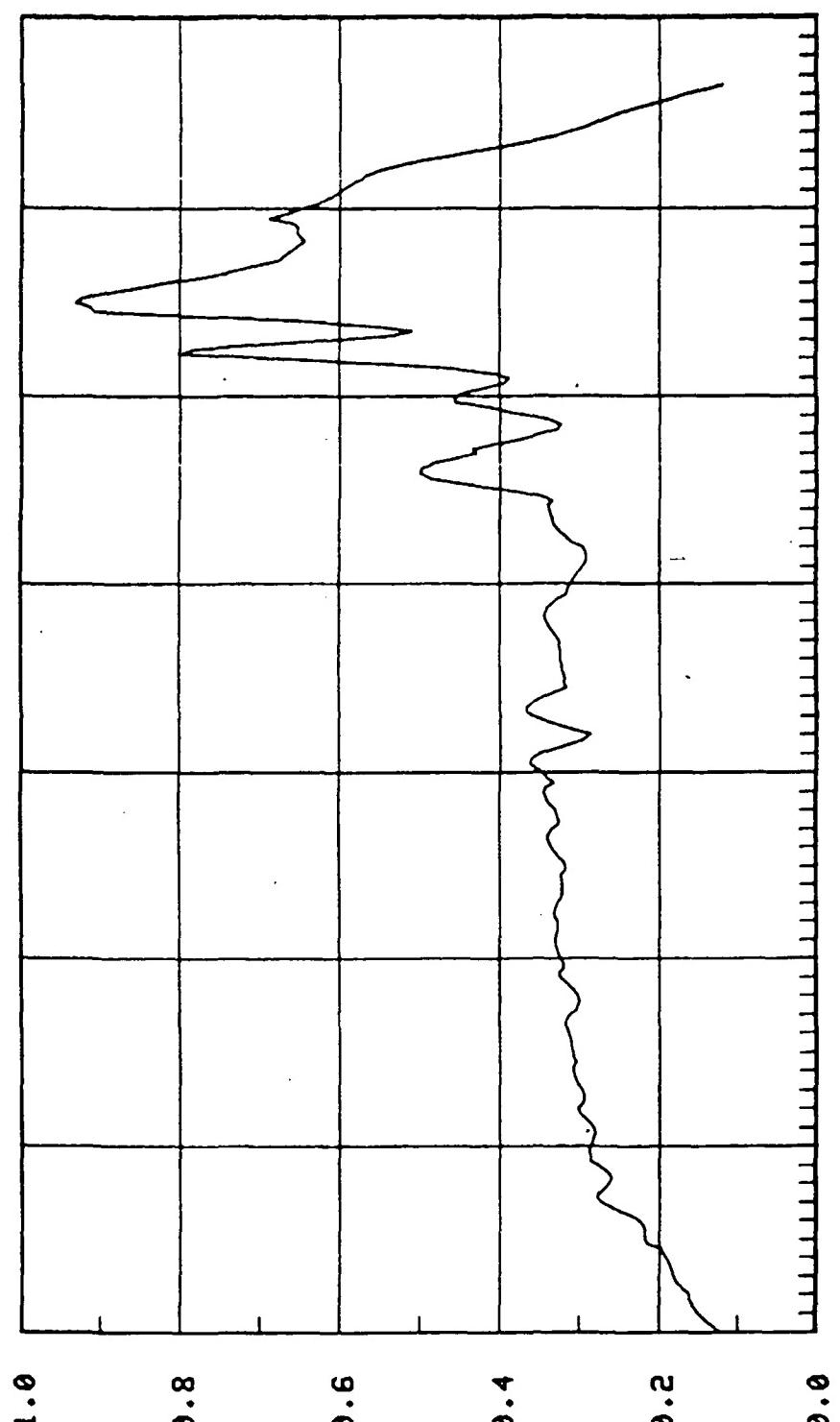


TIME - SECONDS

01/11/84

STS-2 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

W0779903A

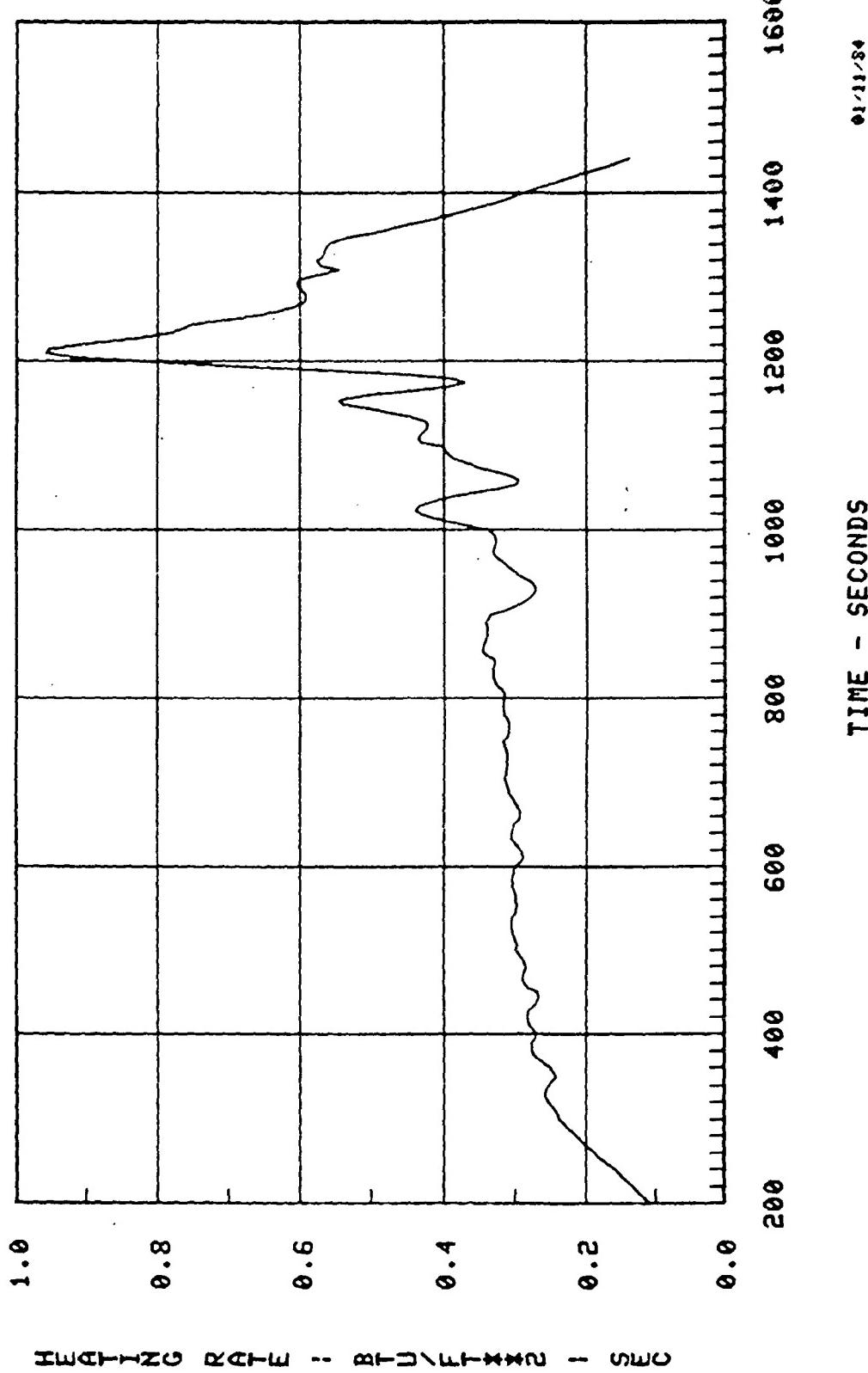


HEATING RATE -- MICRODEGREES -- SEC

01/11/84

STS-3 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

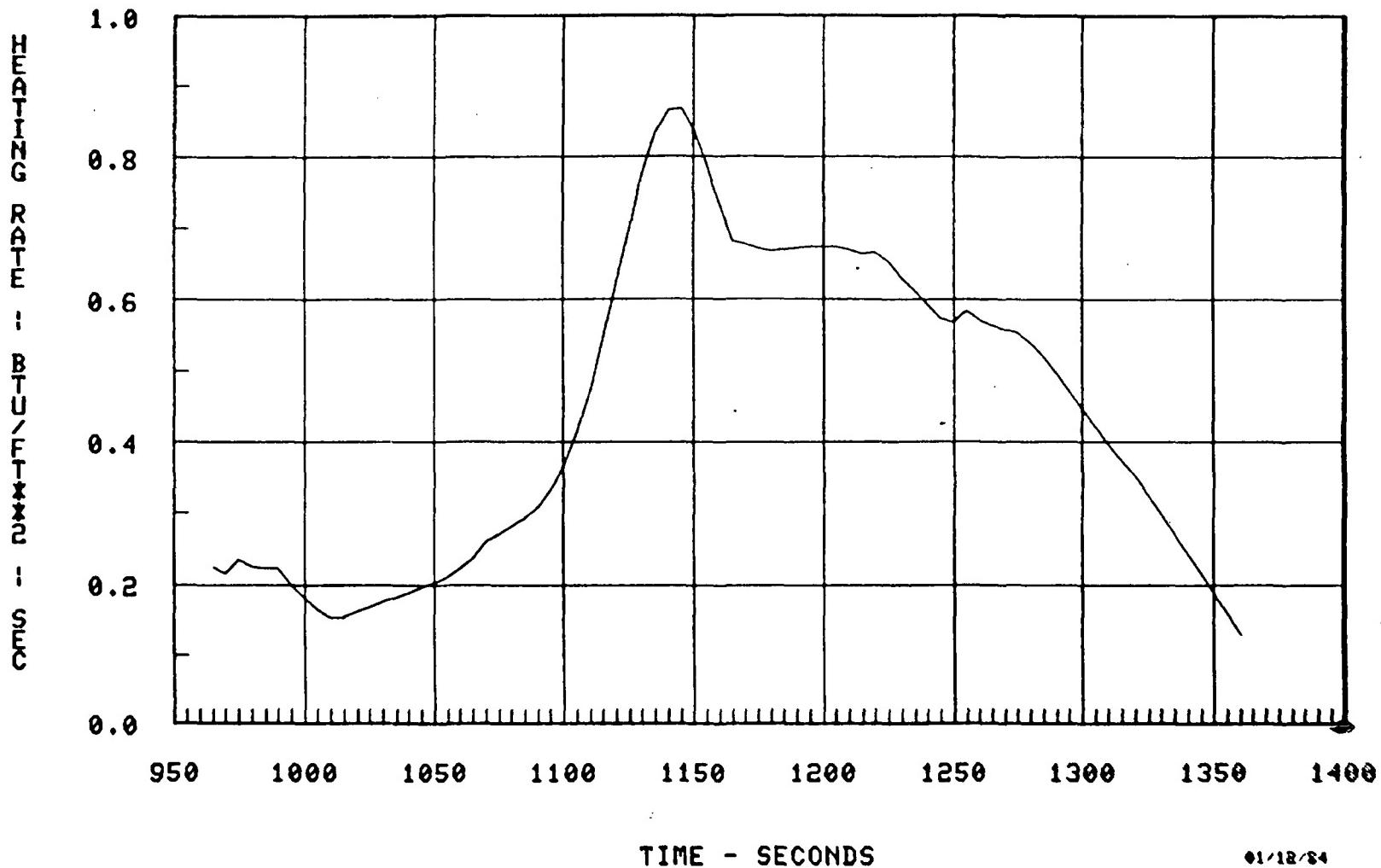
40719903A



HOLDING RATE -- BT-111-1111 - SWC

STS-4 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

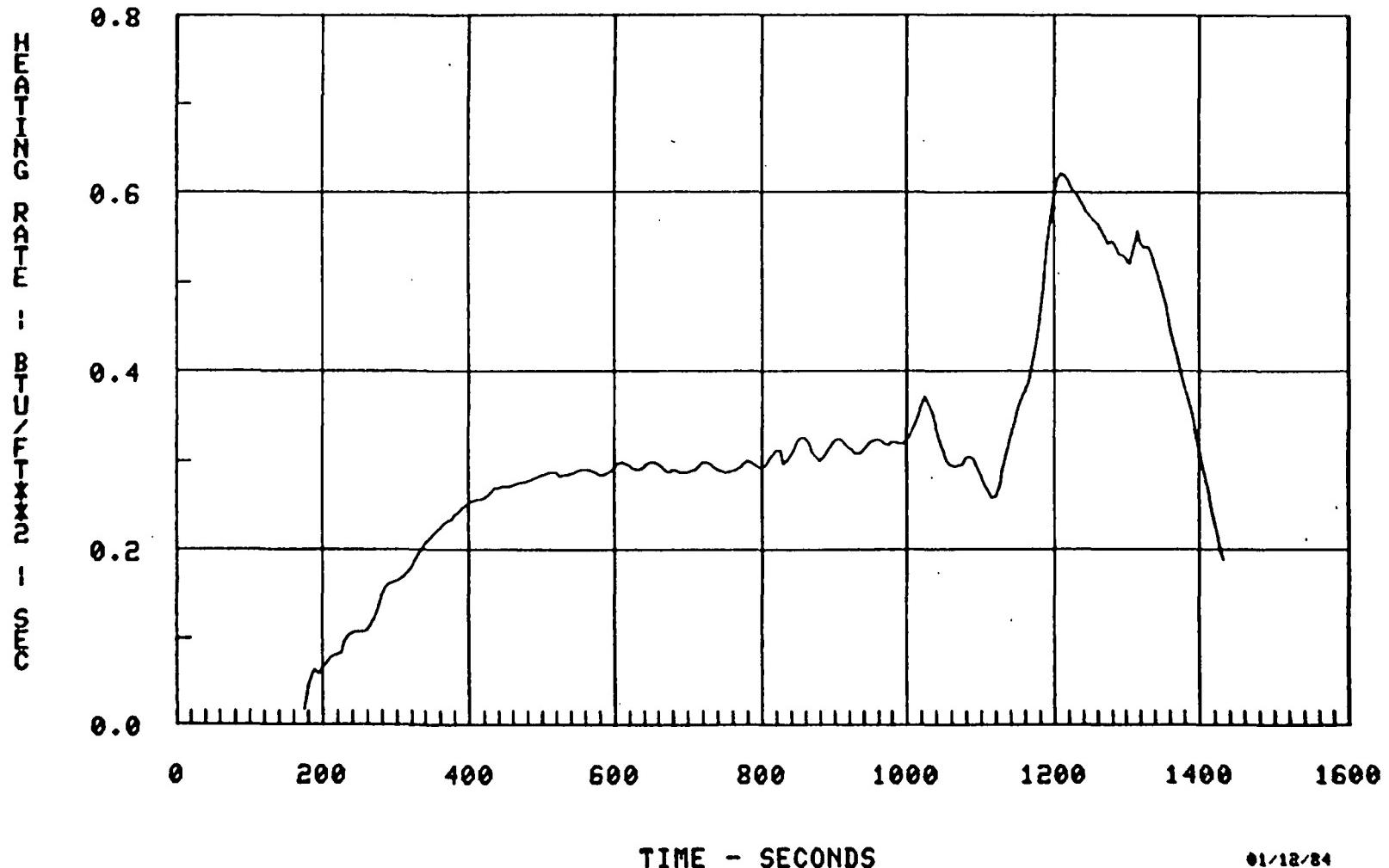
U07T9903A



01/18/84

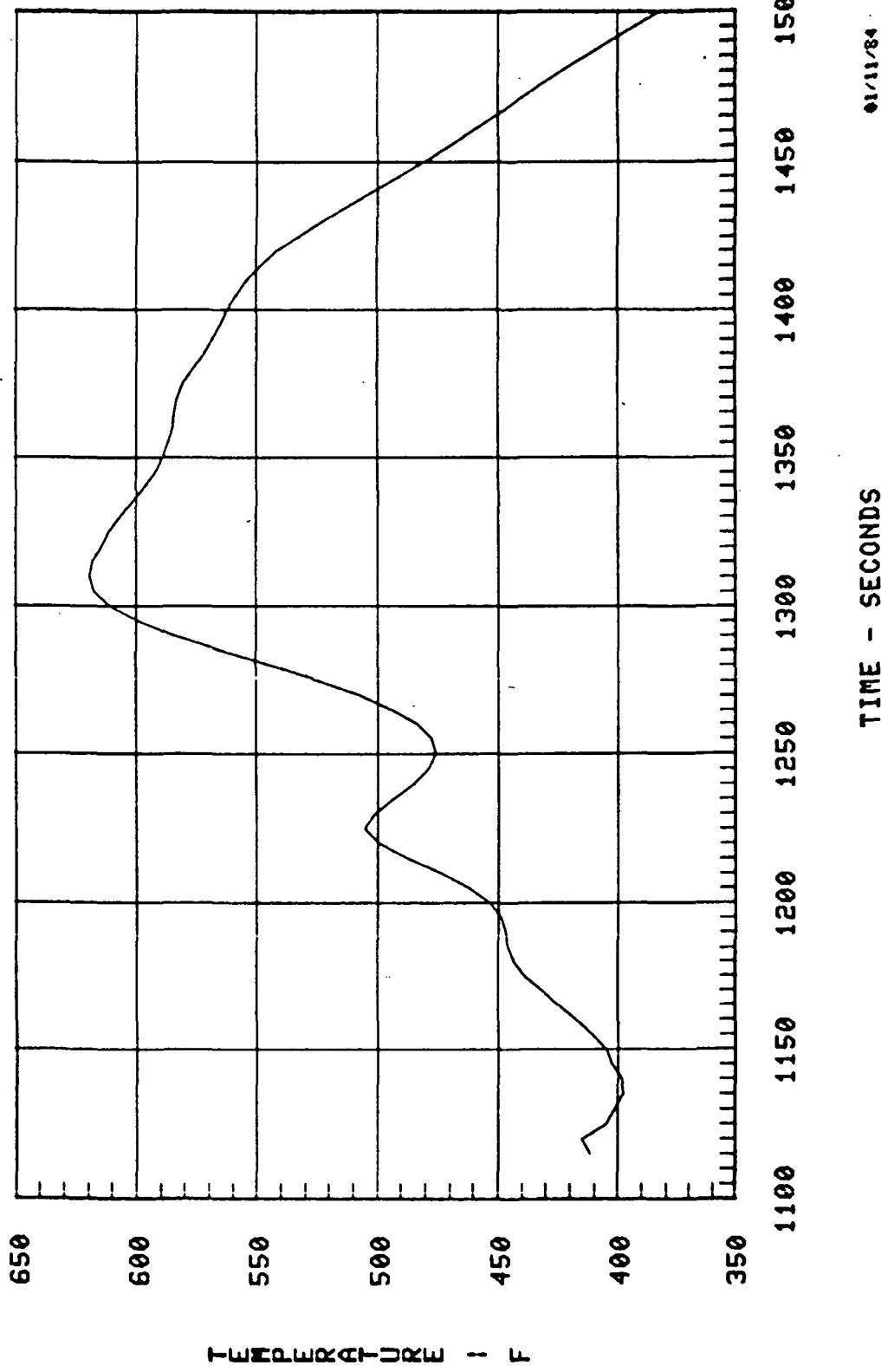
STS-5 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

U07T9903A



STS-1 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

U87T9903A

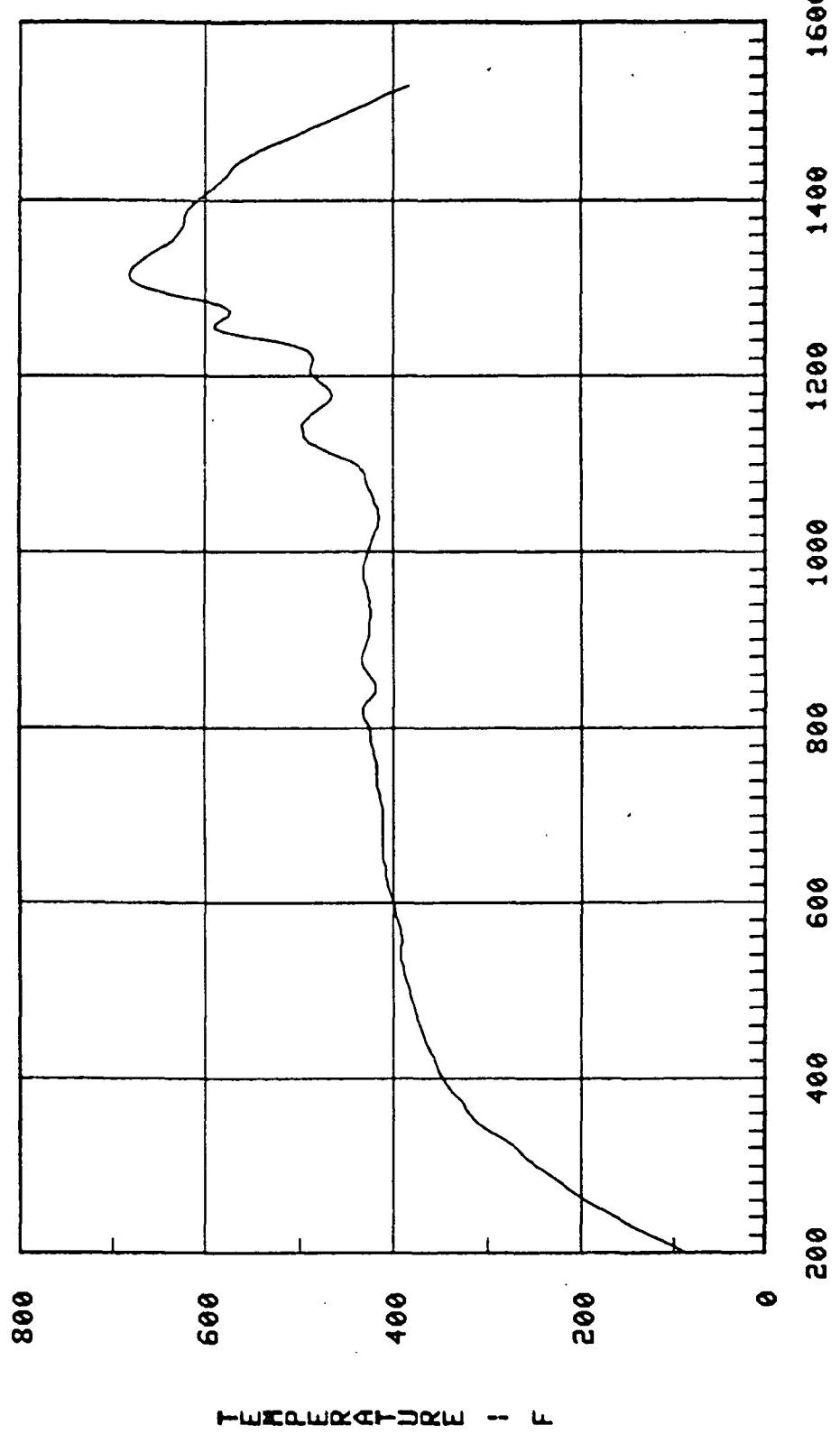


01/11/84

TIME - SECONDS

STS-2 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

U07T9903A

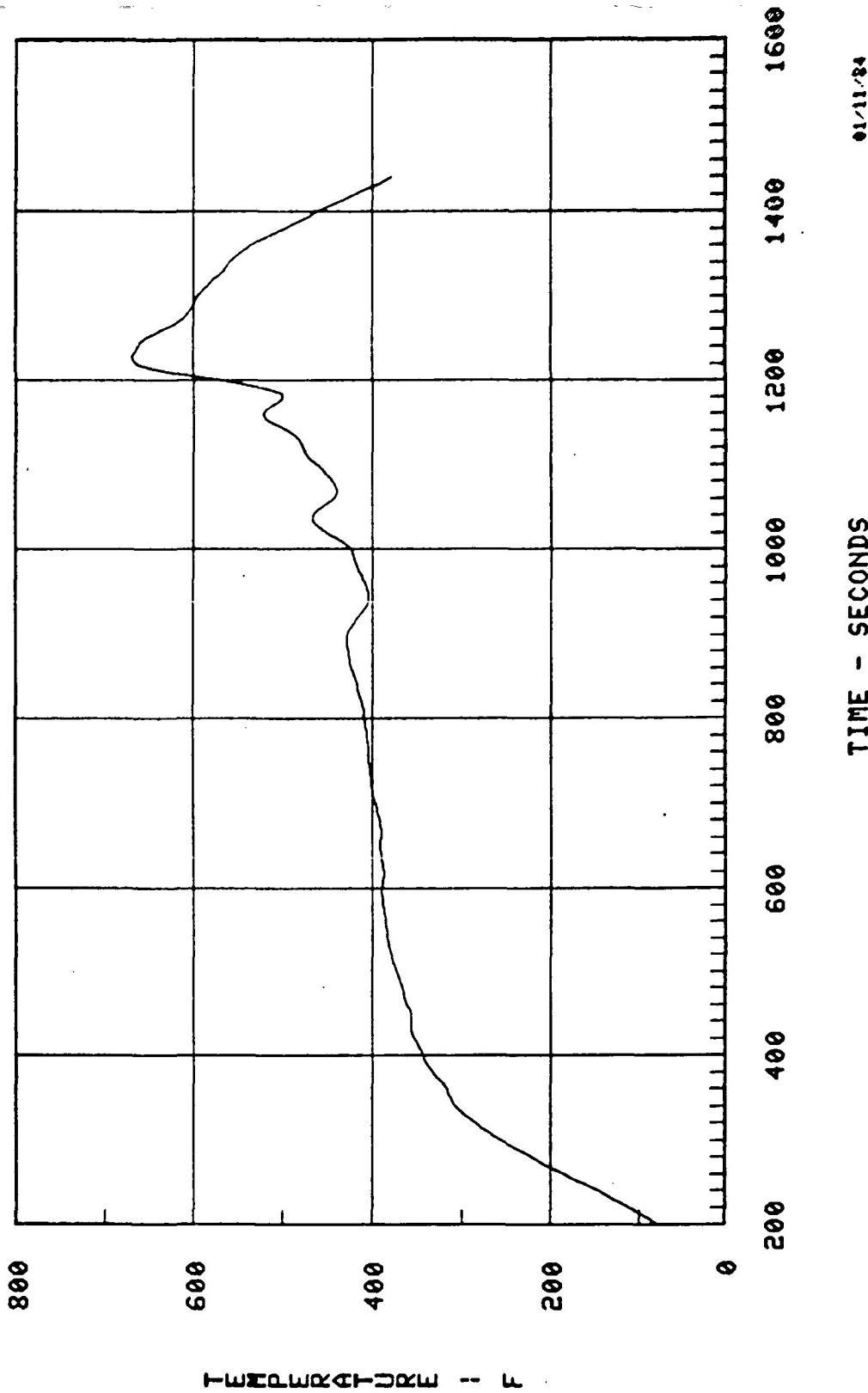


TIME - SECONDS

•1/11/84

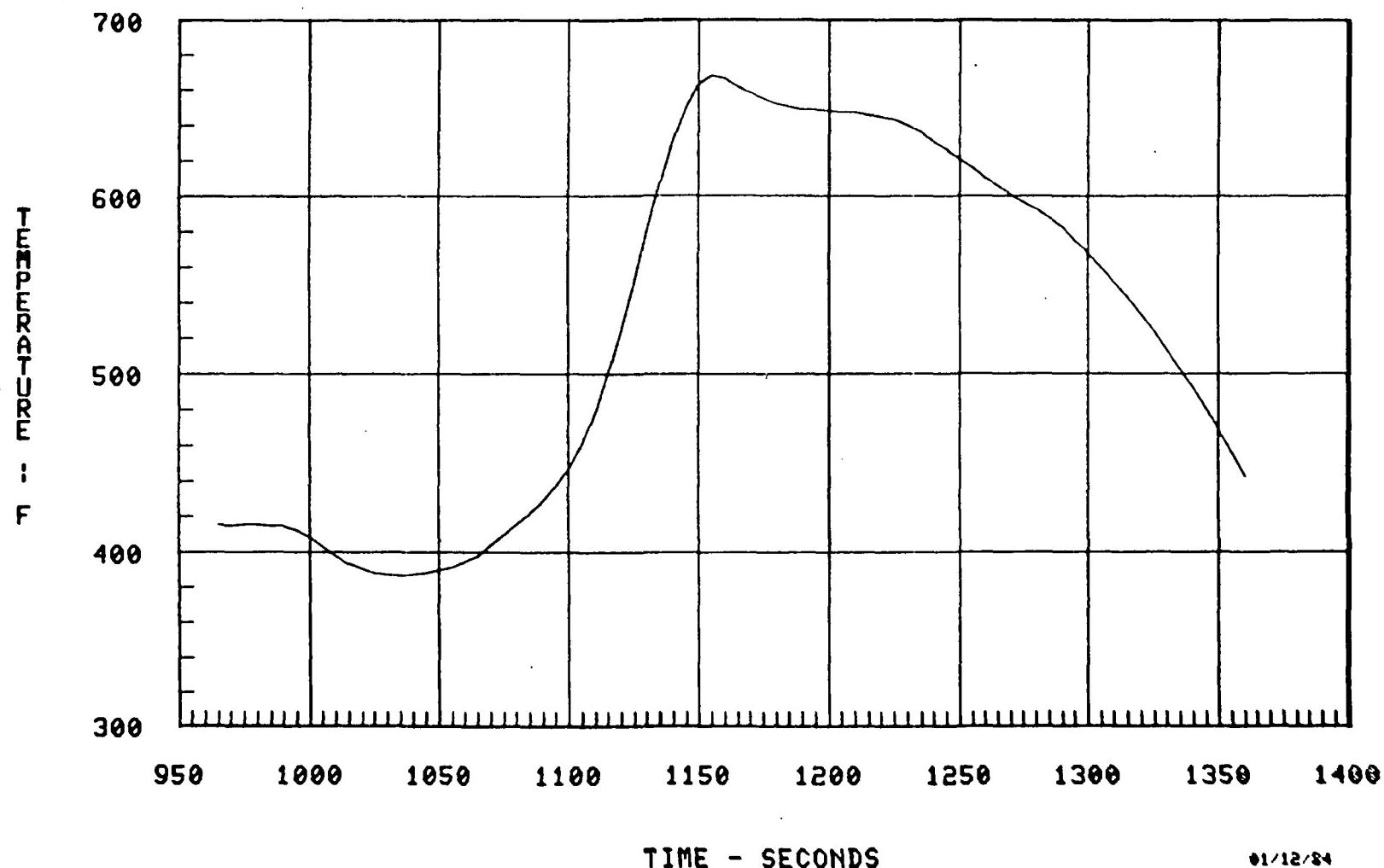
STS-3 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

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STS-4 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

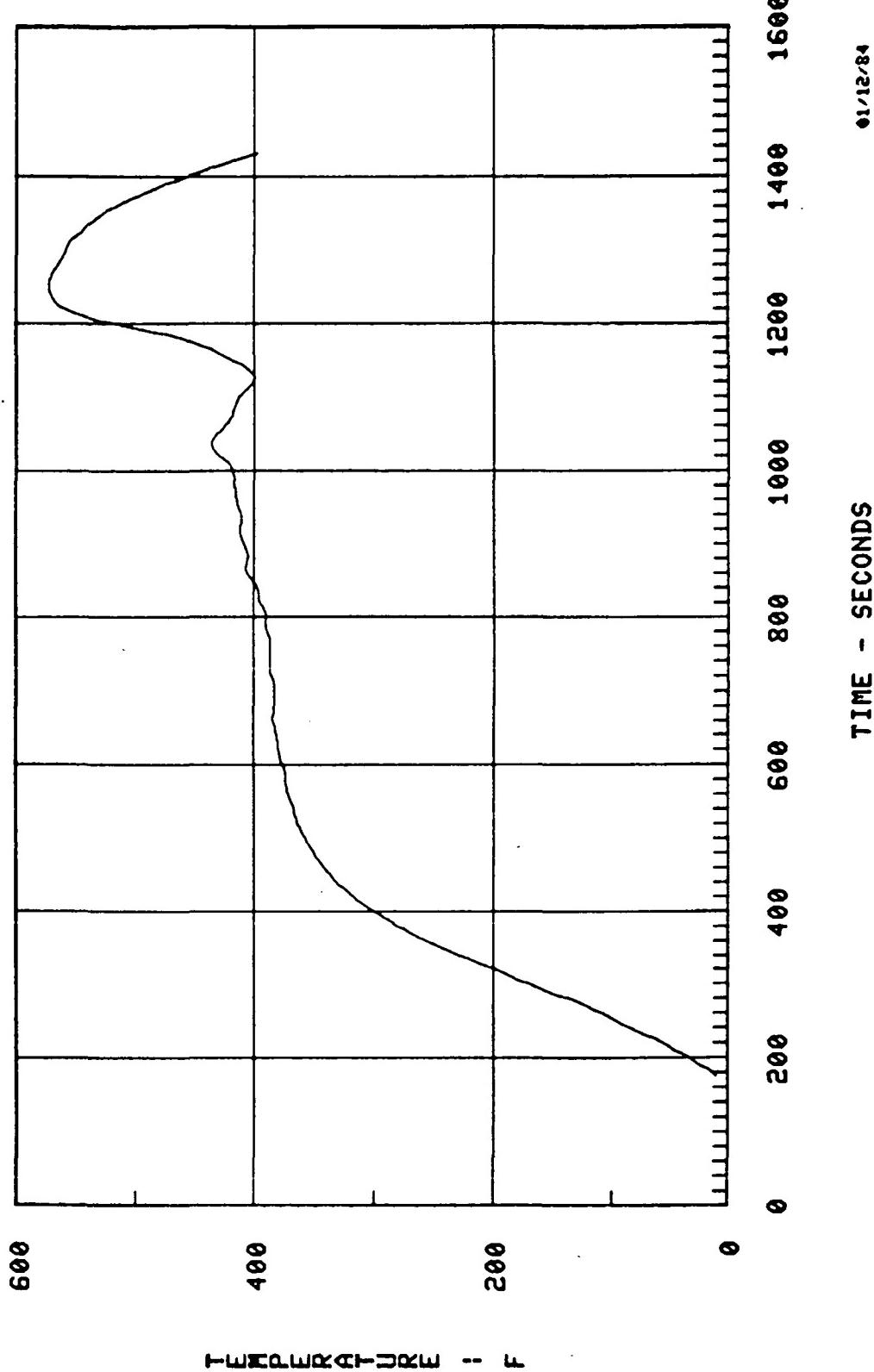
U07T9903A



01/12/84

STS-5 (107 FT LENGTH SIDE FUS X/L=0.60) Z=400

U07T9903A

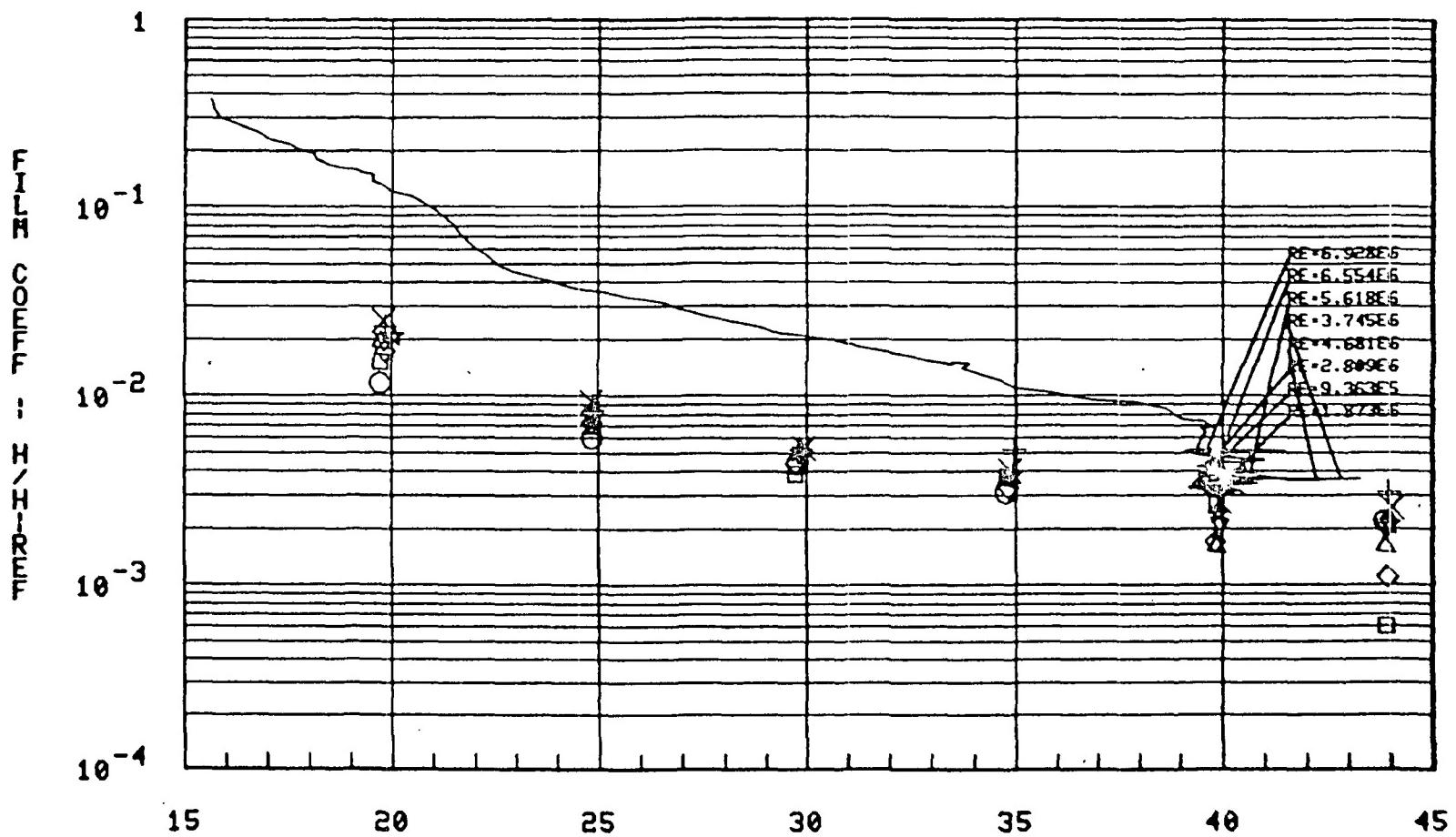


STS-3 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9255A/H-REF 200-1440 SEC

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B-251

ANGLE-OF-ATTACK - DEG

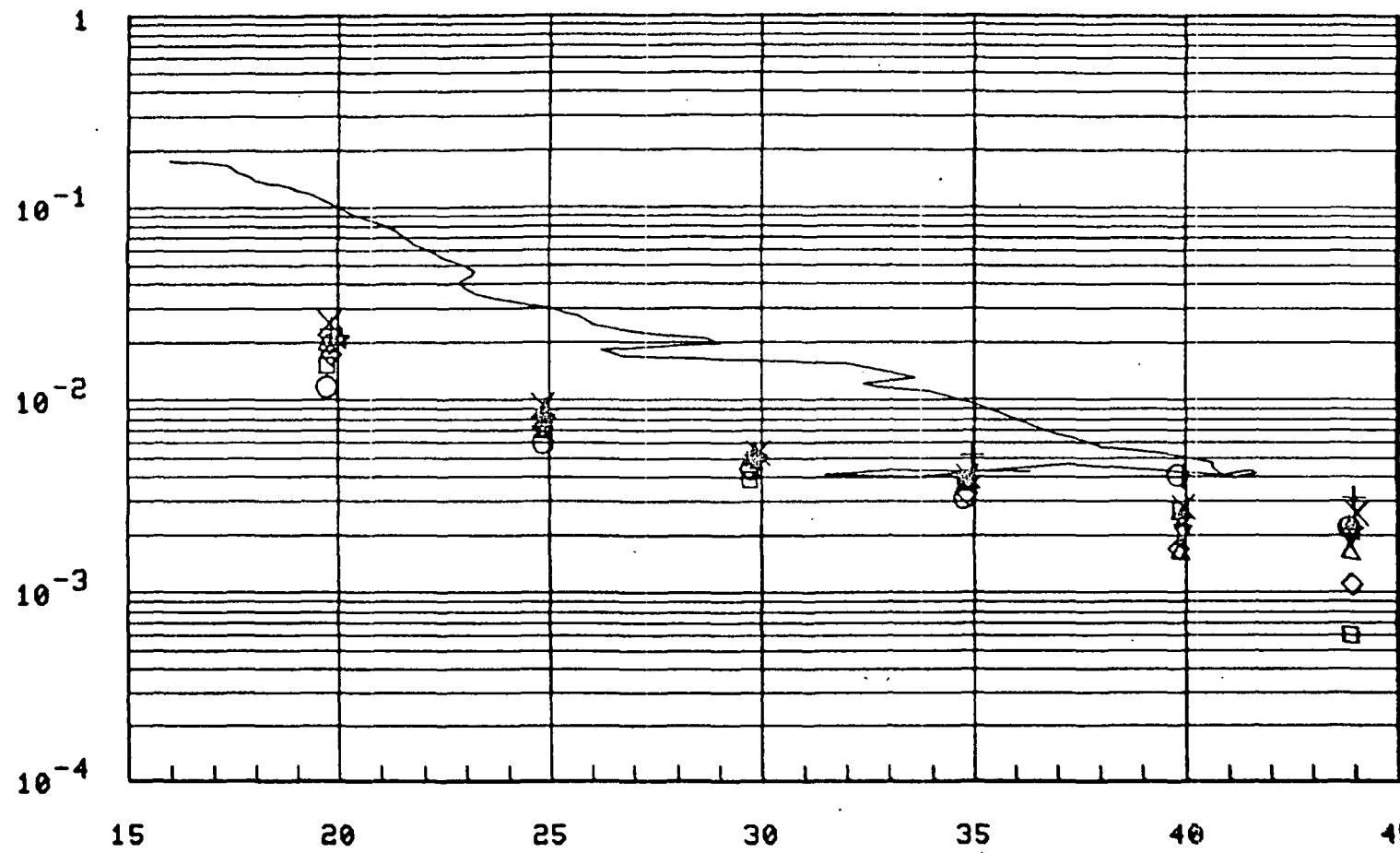
01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9255A/H-REF 965-1360 SEC

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B-252

ANGLE-OF-ATTACK - DEG

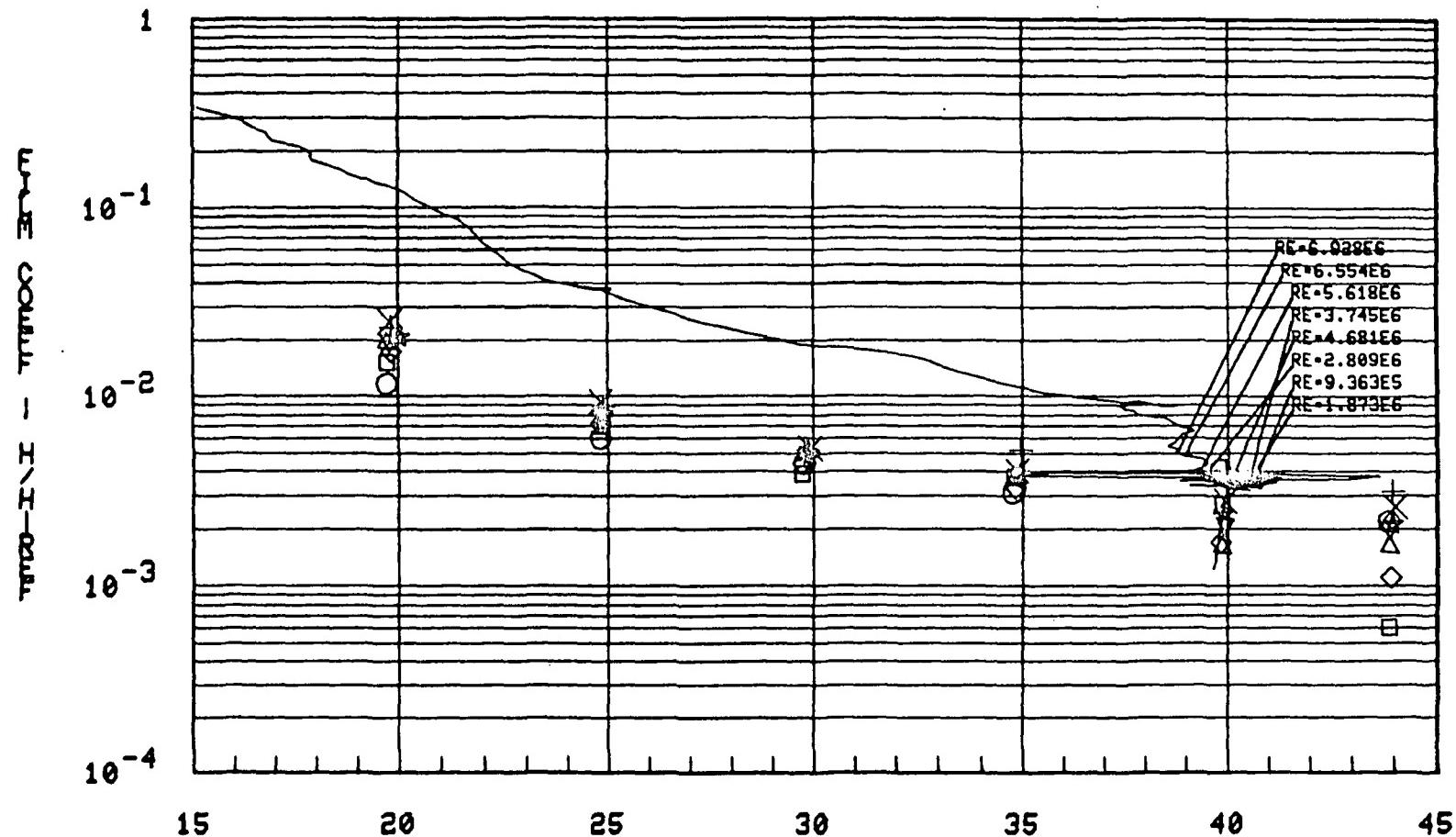
01/12/84
BASE TIME • 16040429.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

V07T9255A/H-REF 150-1430 SEC

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B-253

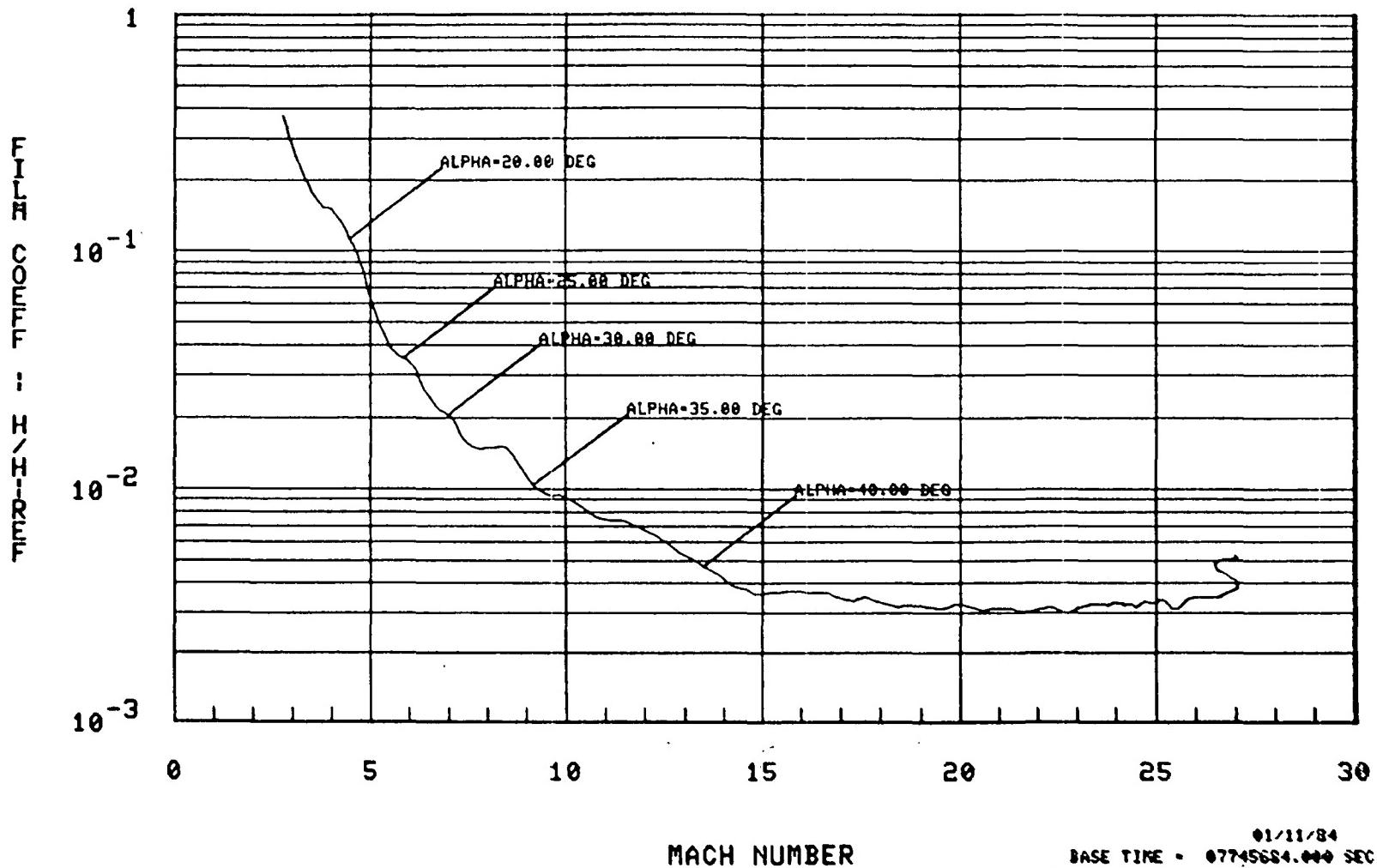
ANGLE-OF-ATTACK - DEG

01/12/84

BASE TIME = 27688591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

U07T9255A/H-REF 200-1440 SEC



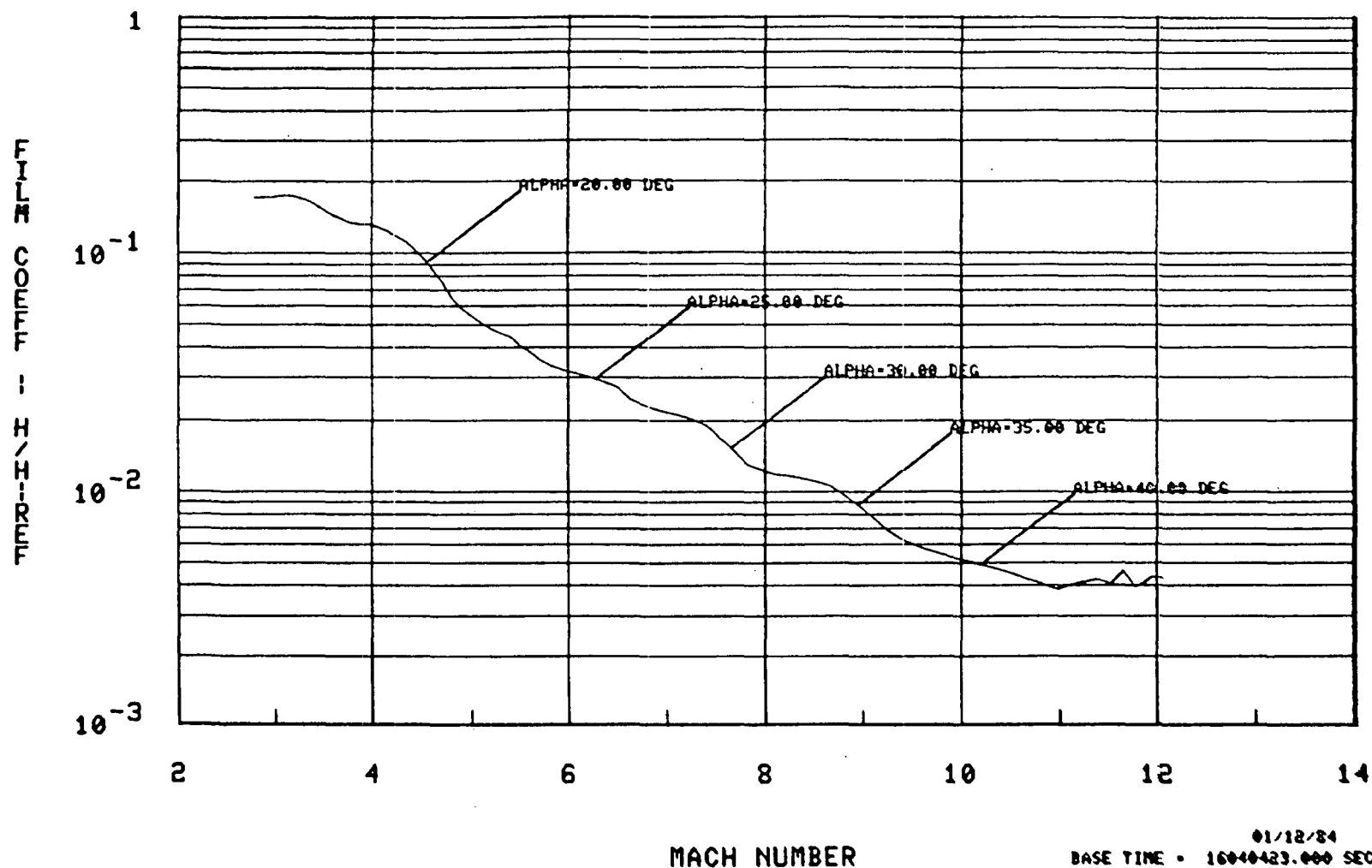
B-254

MACH NUMBER

01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

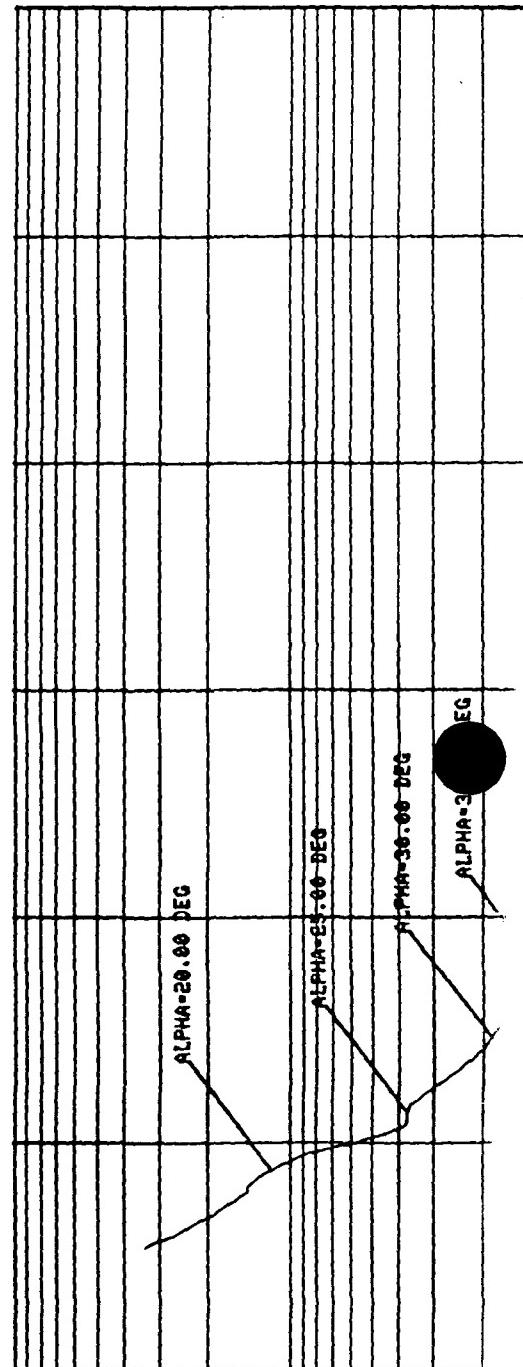
U07T9255A/H-REF 965-1360 SEC



01/12/84
BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

U0779255A/H-REF 150-1430 SEC



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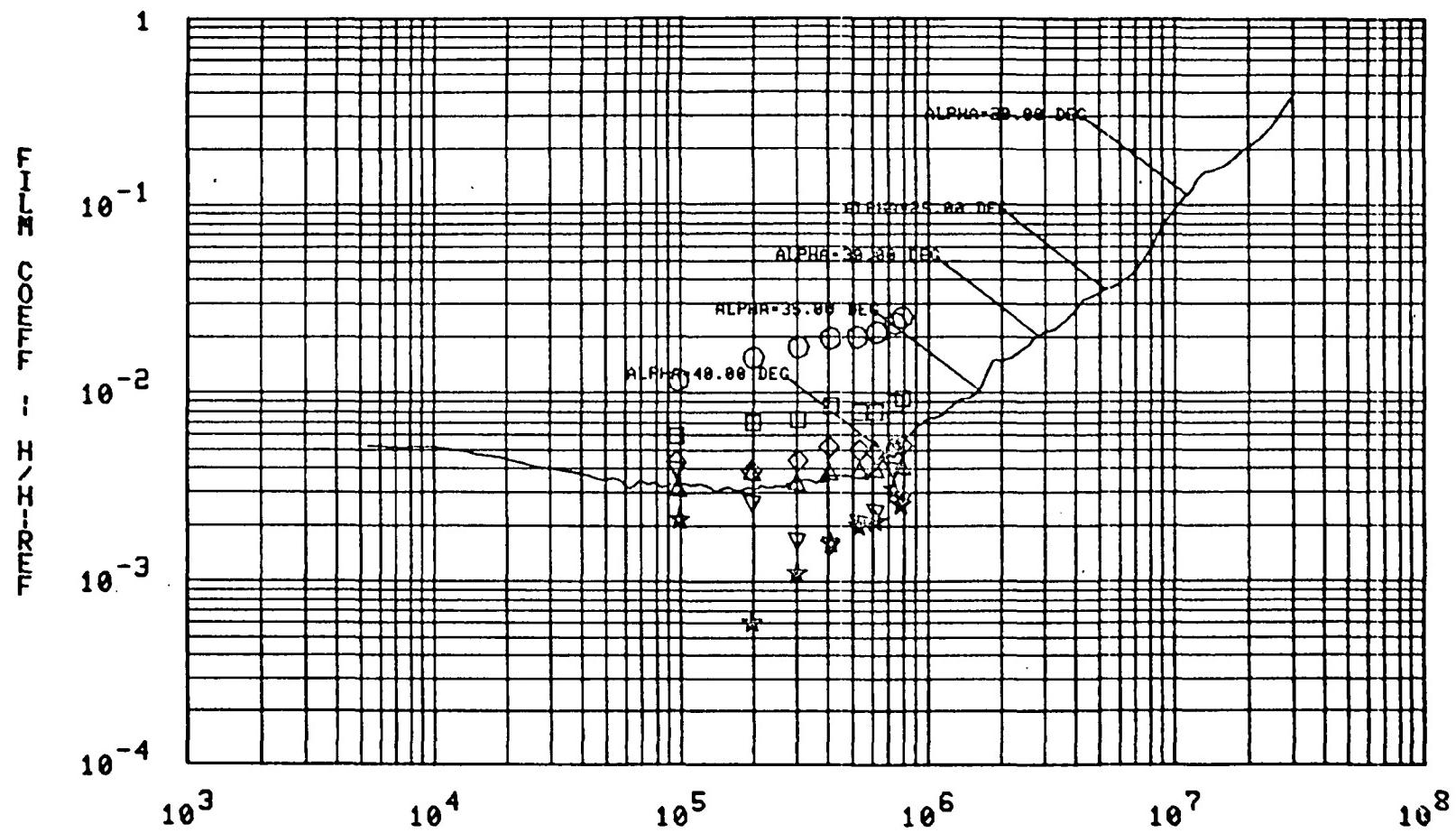
LINE DRAWING

STS-3 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9255A/H-REF 200-1440 SEC

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B-257

REYNOLDS NUMBER (NS)

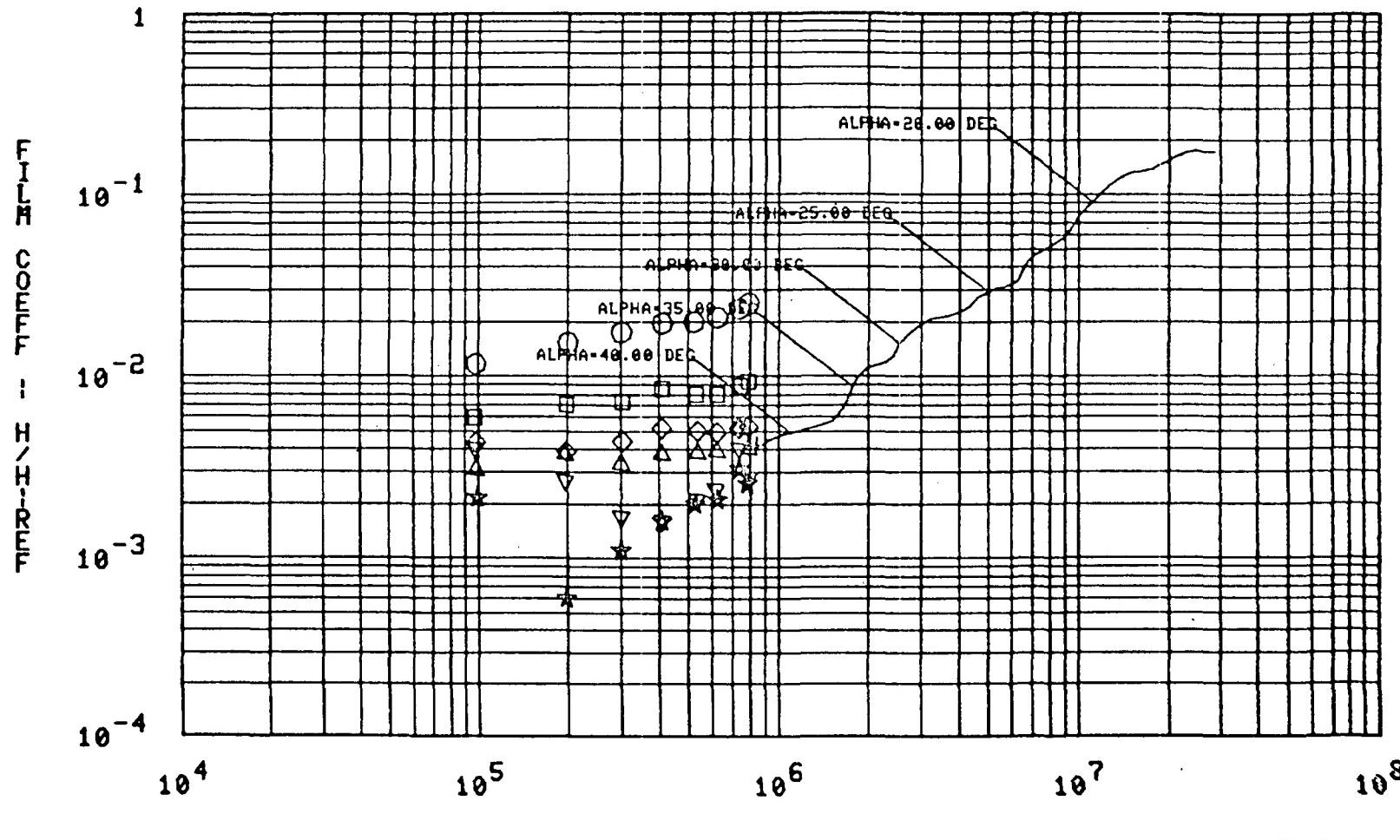
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9255A/H-REF 965-1360 SEC



B-258

REYNOLDS NUMBER (NS)

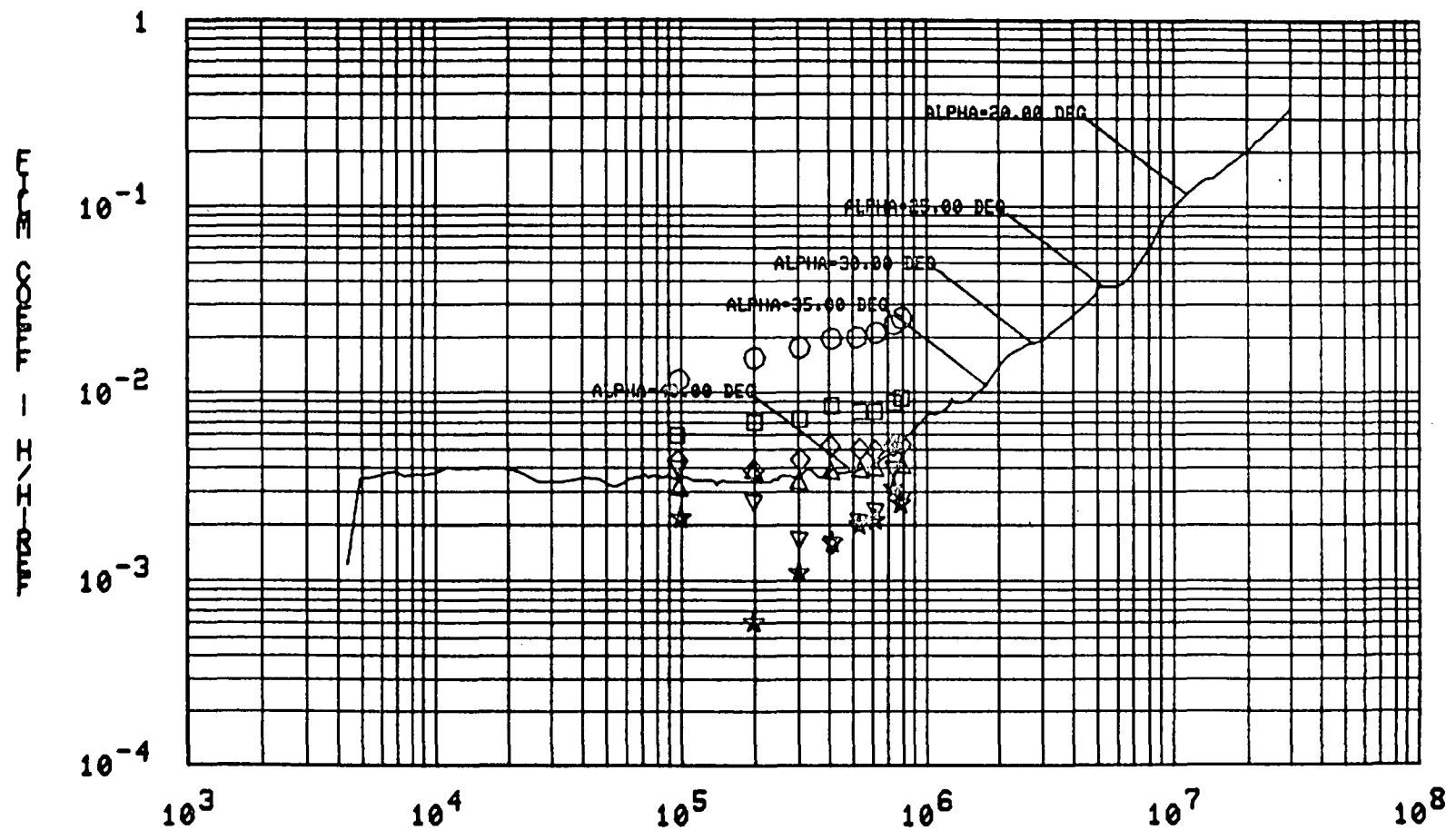
01/18/S4
 BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9255A/H-REF 150-1430 SEC

○ □ △ ▽ ★



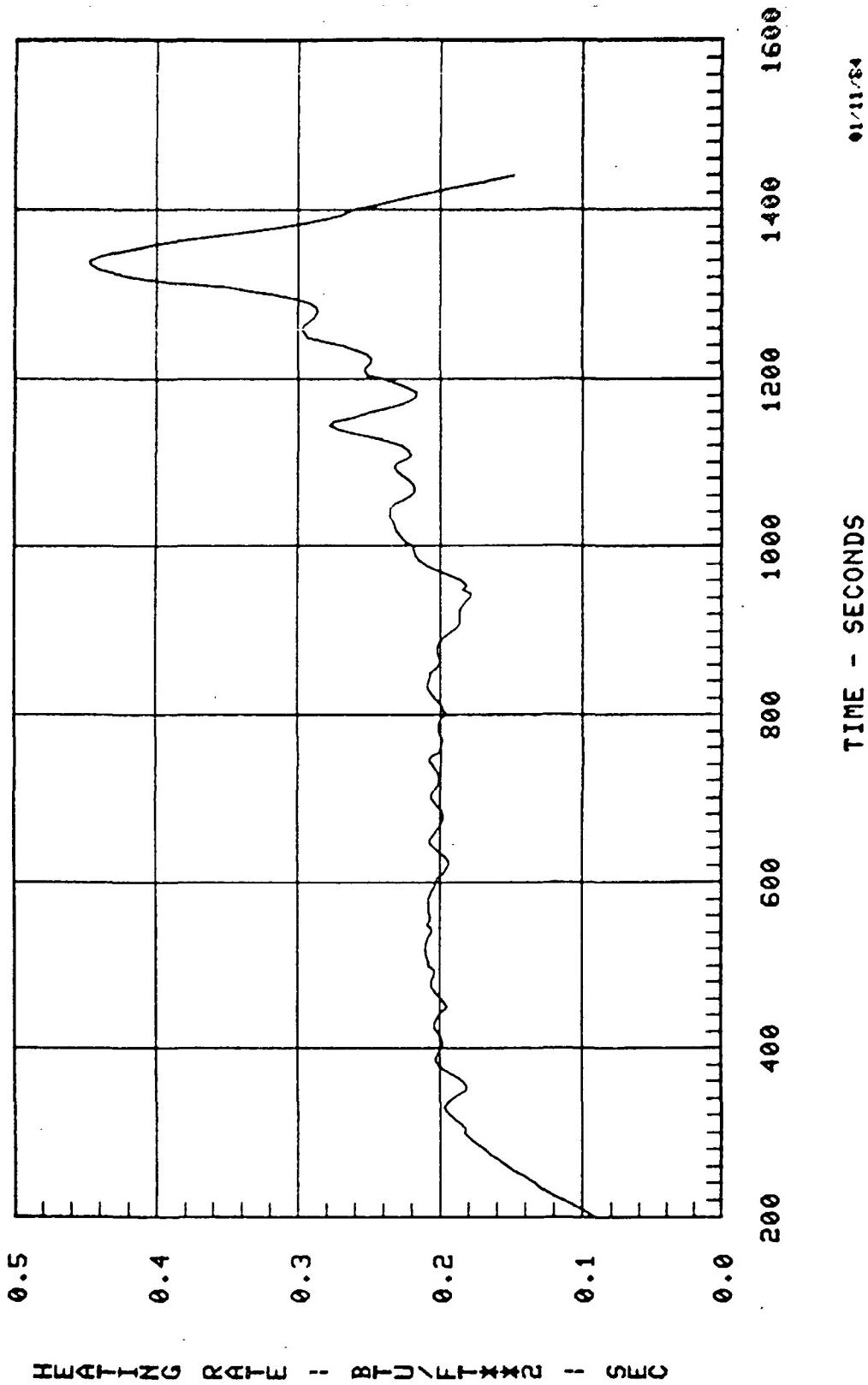
B-259

REYNOLDS NUMBER (NS)

01/12/84
BASE TIME • 27698591.000 SEC.

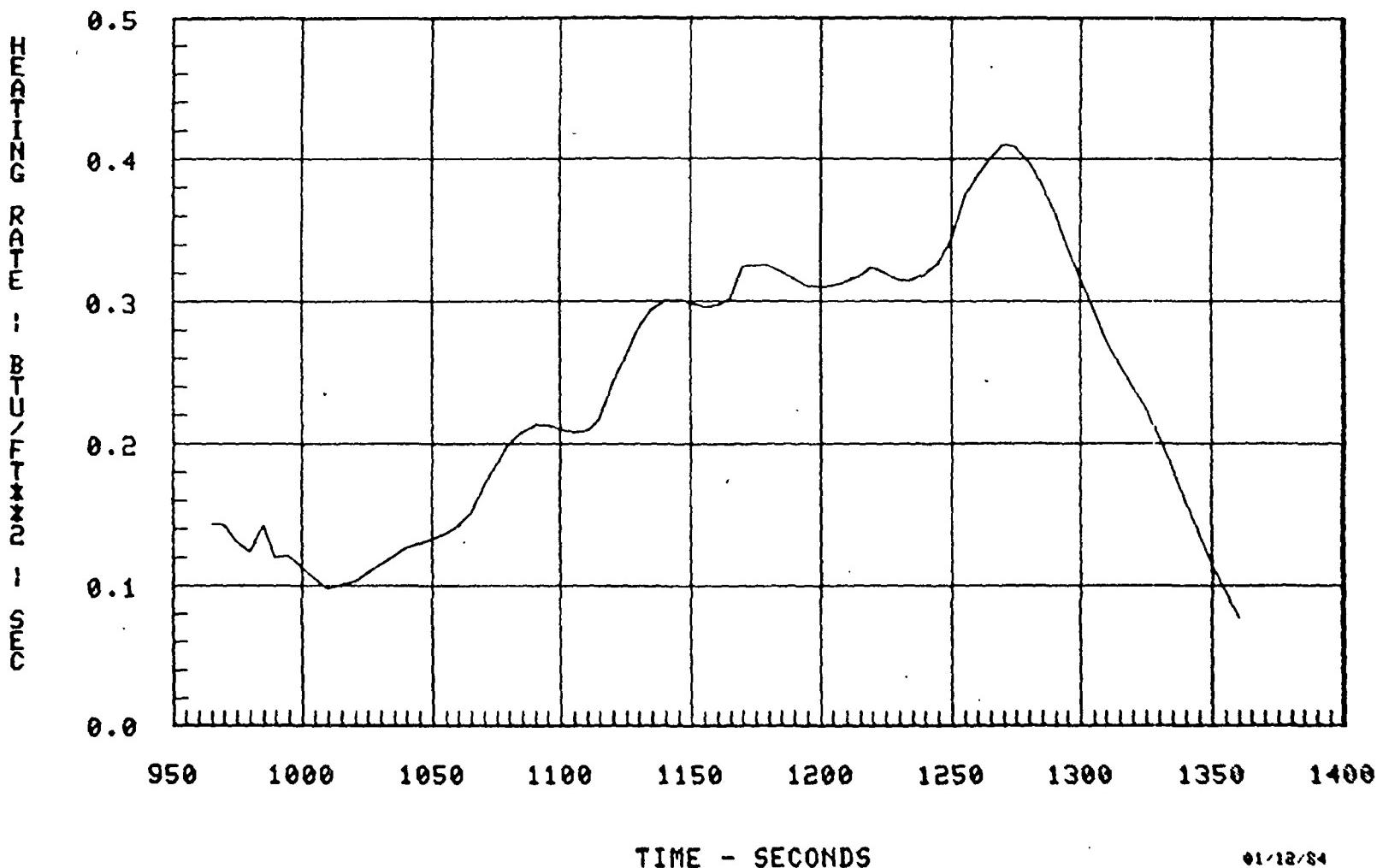
STS-3 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

40719255A



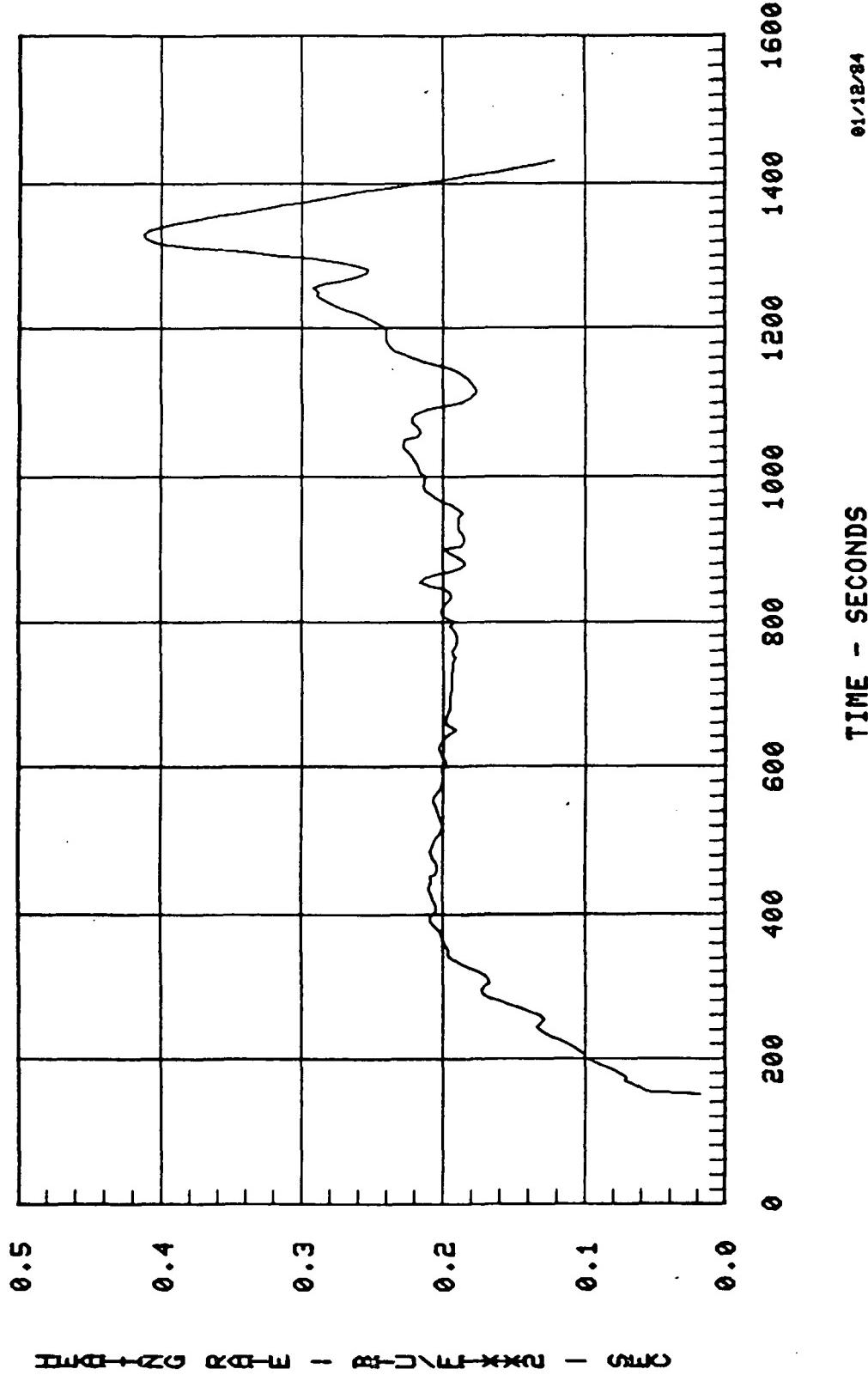
STS-4 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

U07T9255A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

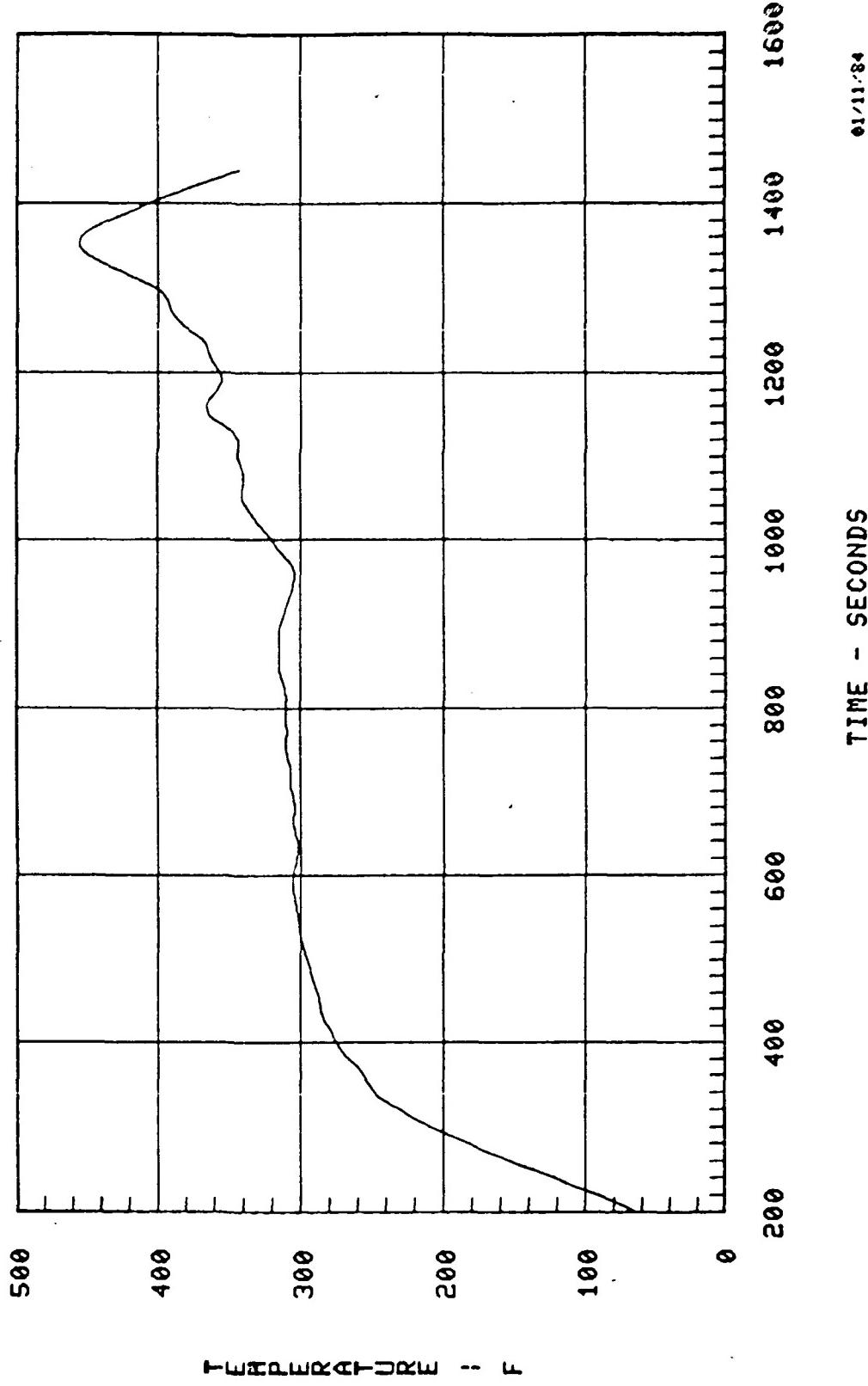
08779255A



INSTRUMENTATION - ATTACHMENT - CIRCUIT

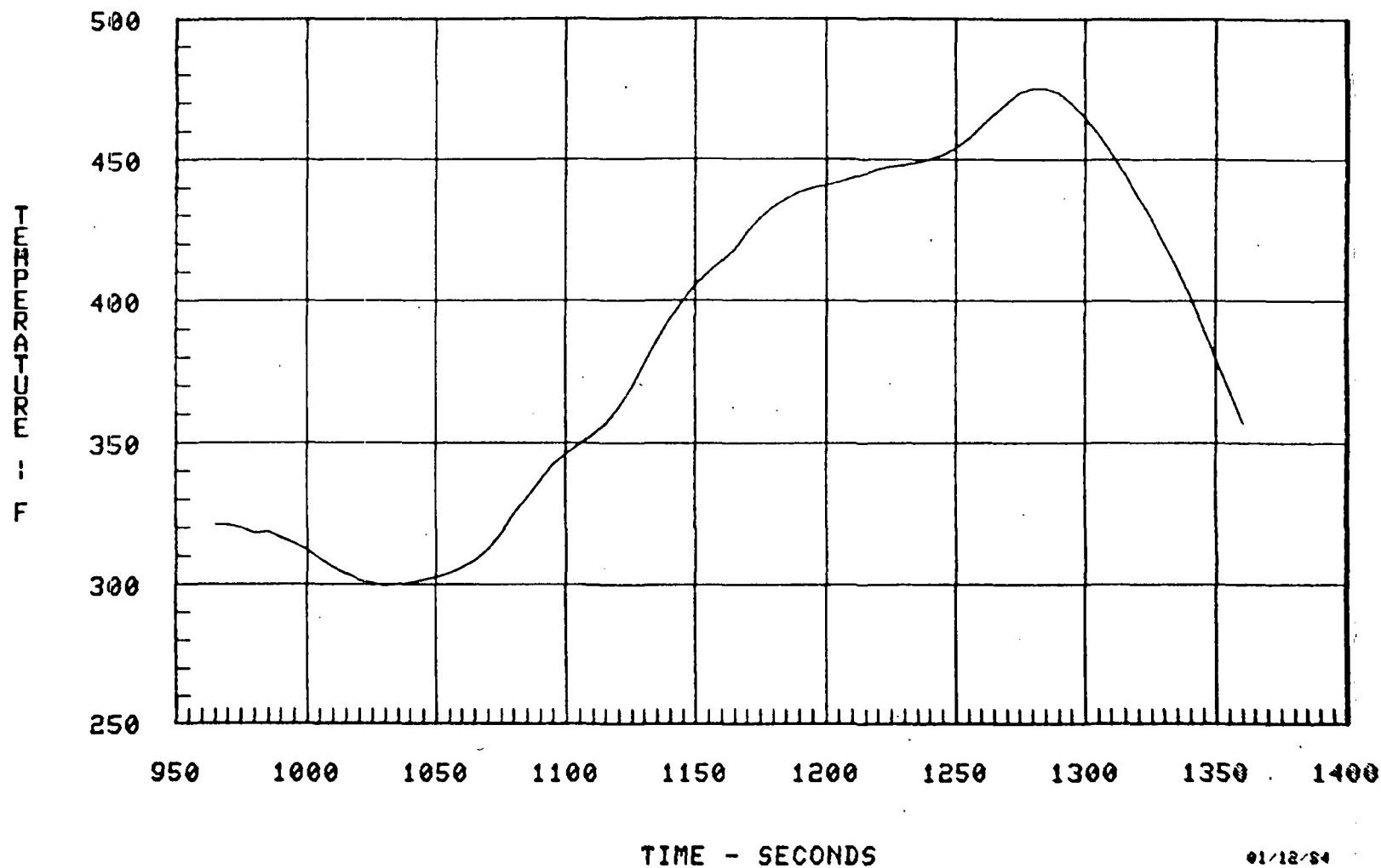
STS-3 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

U87T9255A



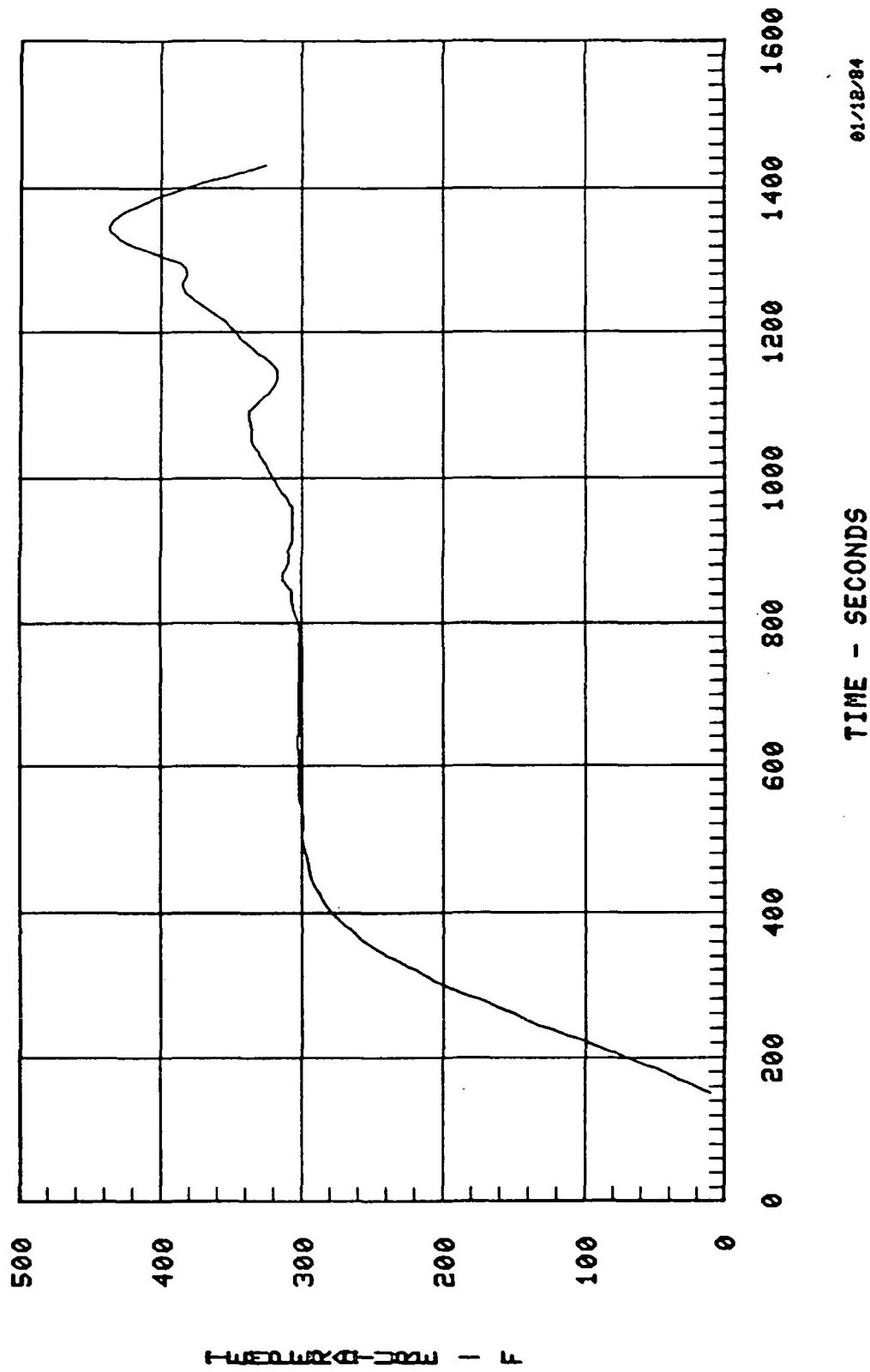
STS-4 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

U07T9255A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.65) Z=400

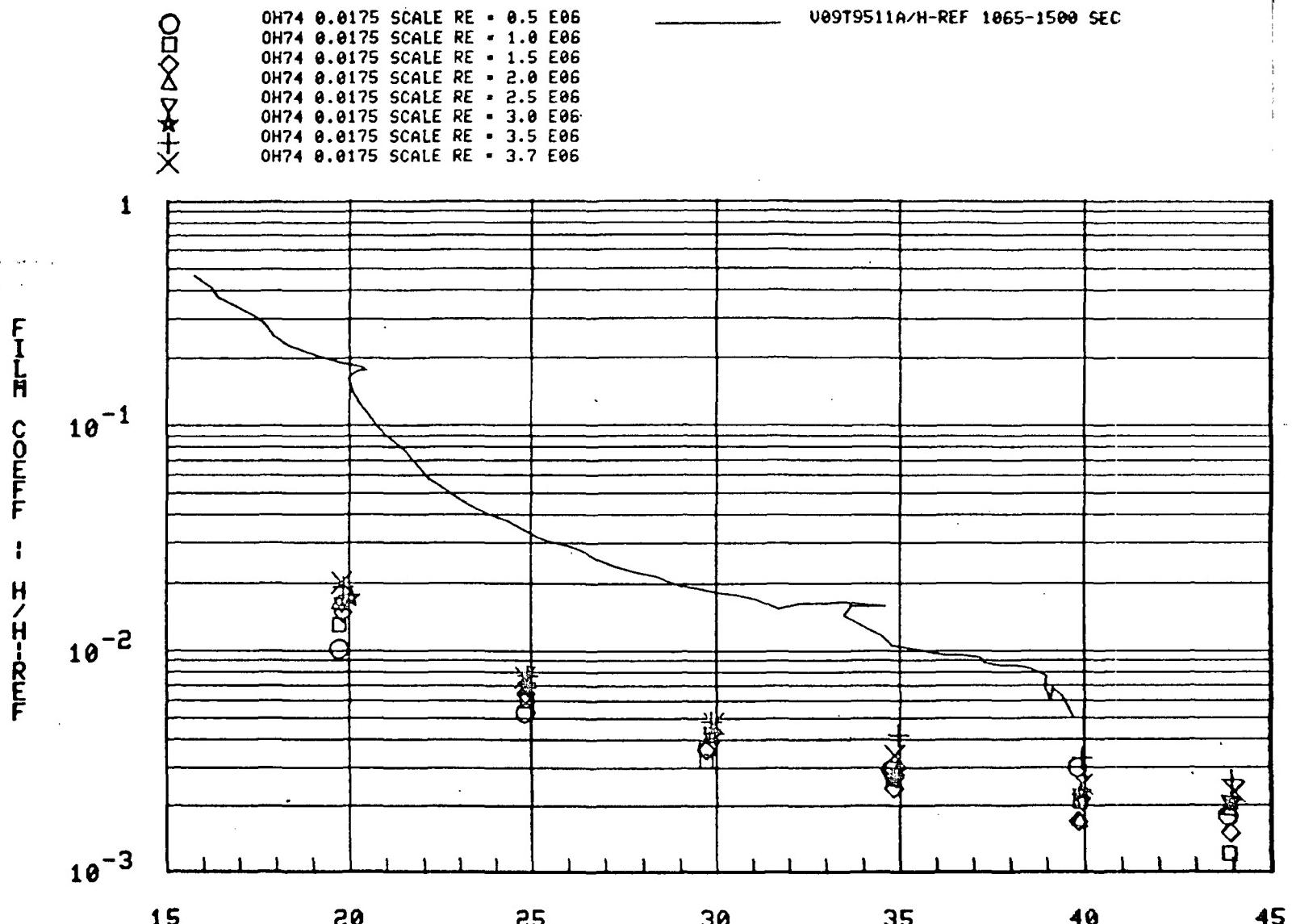
U07T9255A



STS-1 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U89T9511A/H-REF 1065-1500 SEC



B-266

ANGLE-OF-ATTACK - DEG

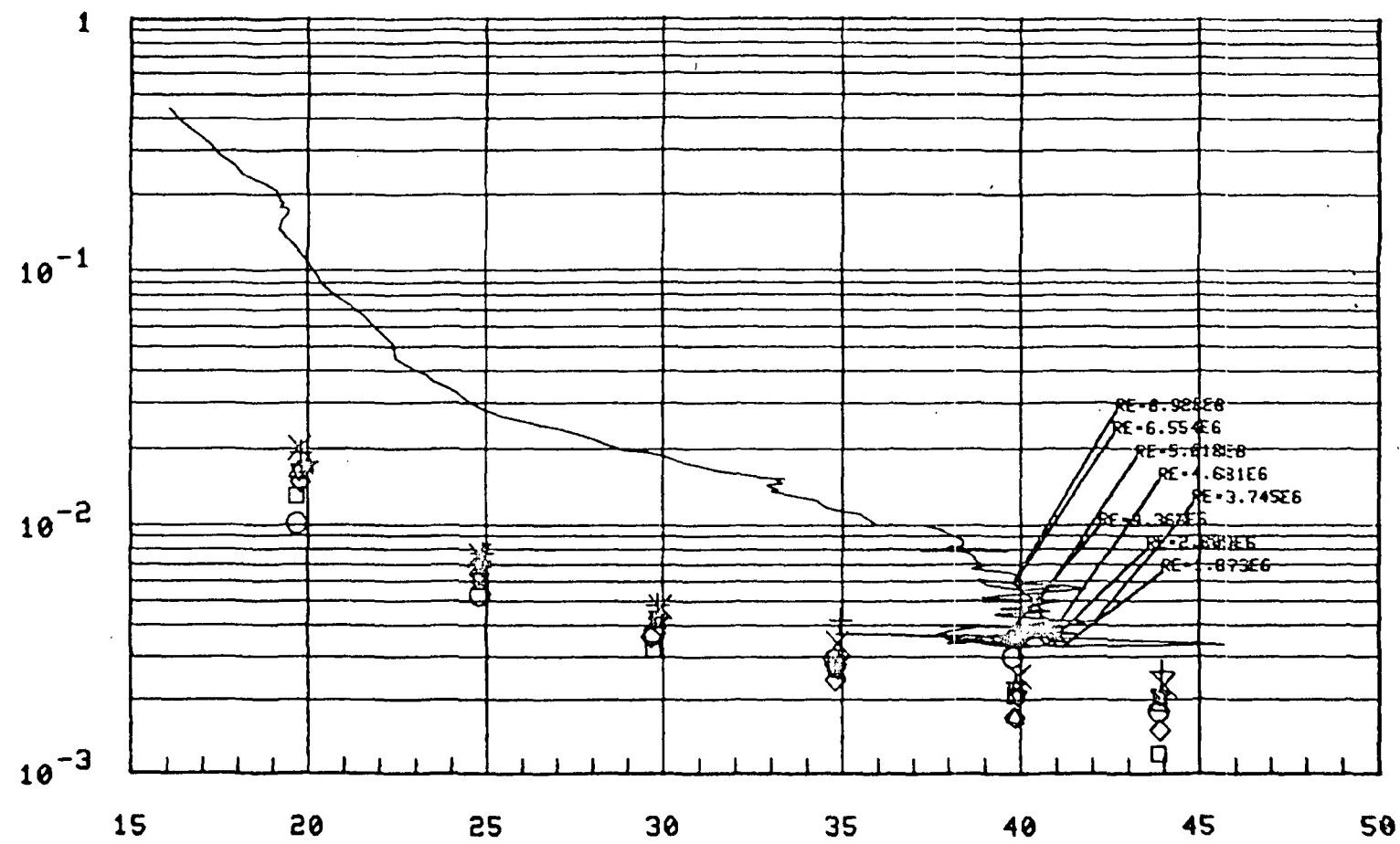
01/11/84

STS-2 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

V09T9511A/H-REF 200-1530 SEC

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B-267

01/11/84
 ANGLE-OF-ATTACK - DEG

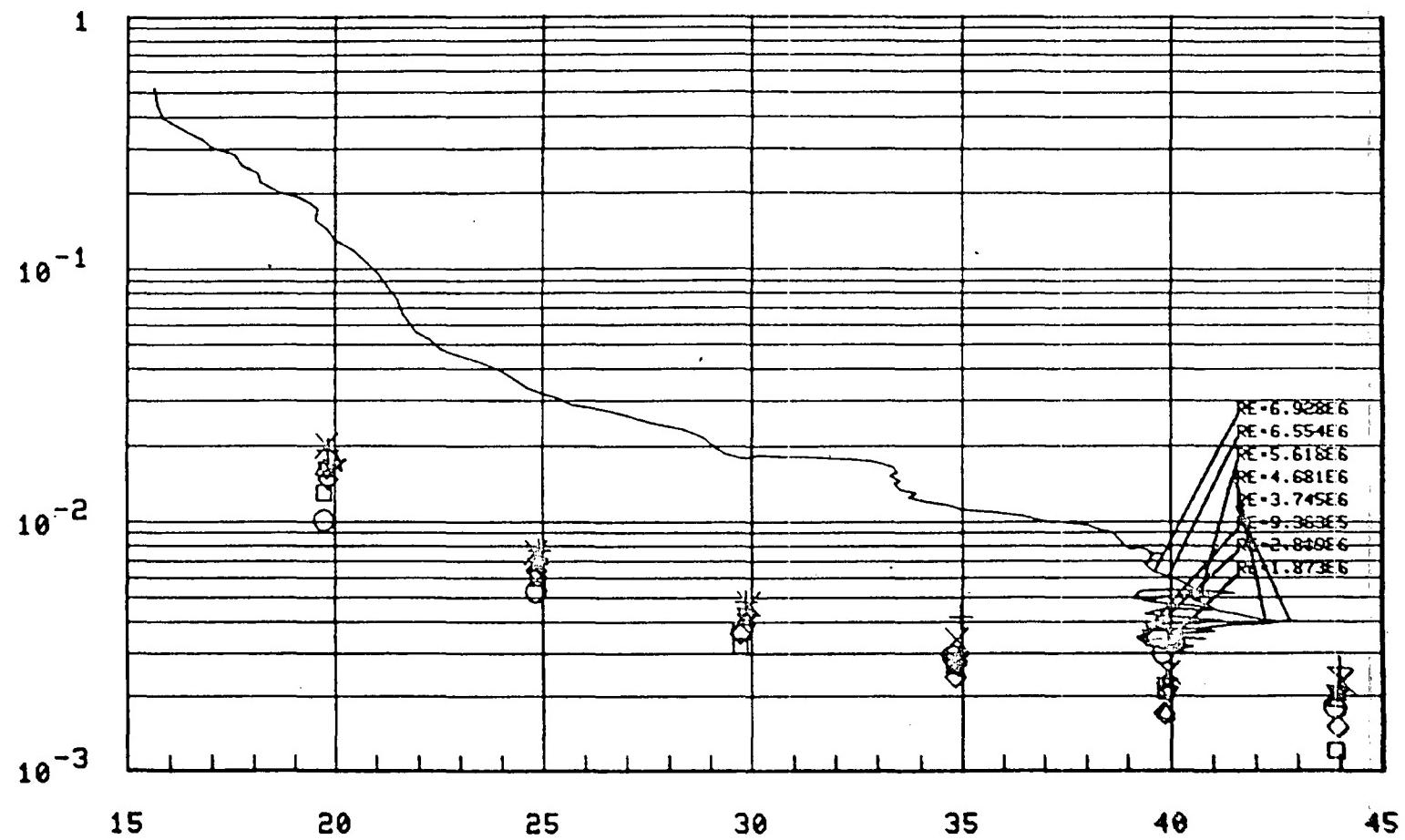
BASE TIME = 27550235.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U09T9511A/H-REF 200-1440 SEC

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B-268

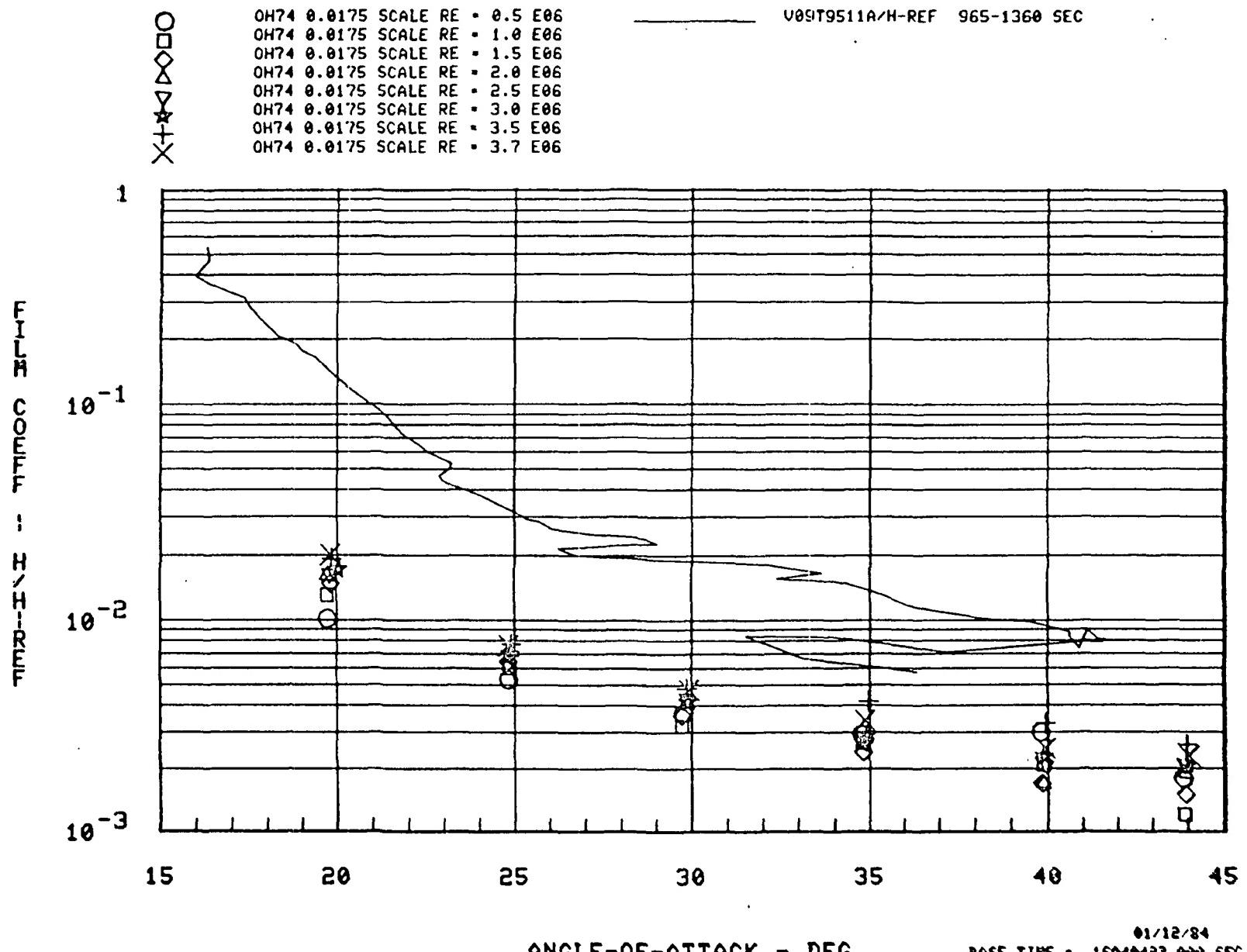
ANGLE-OF-ATTACK - DEG

01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

V09T9511A/H-REF 965-1360 SEC



B-269

ANGLE-OF-ATTACK - DEG

01/12/84

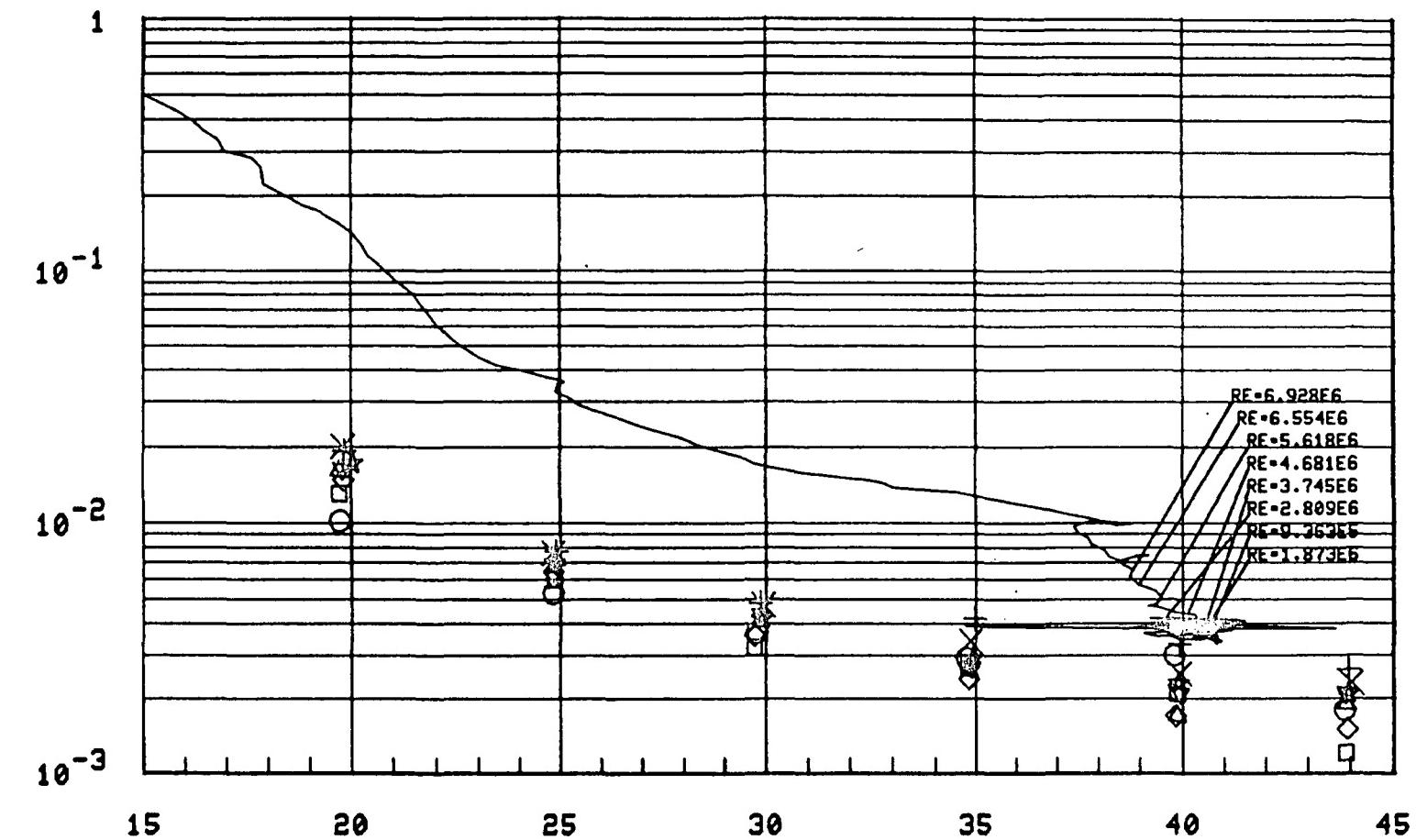
BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

V09T9511A/H-REF 150-1430 SEC

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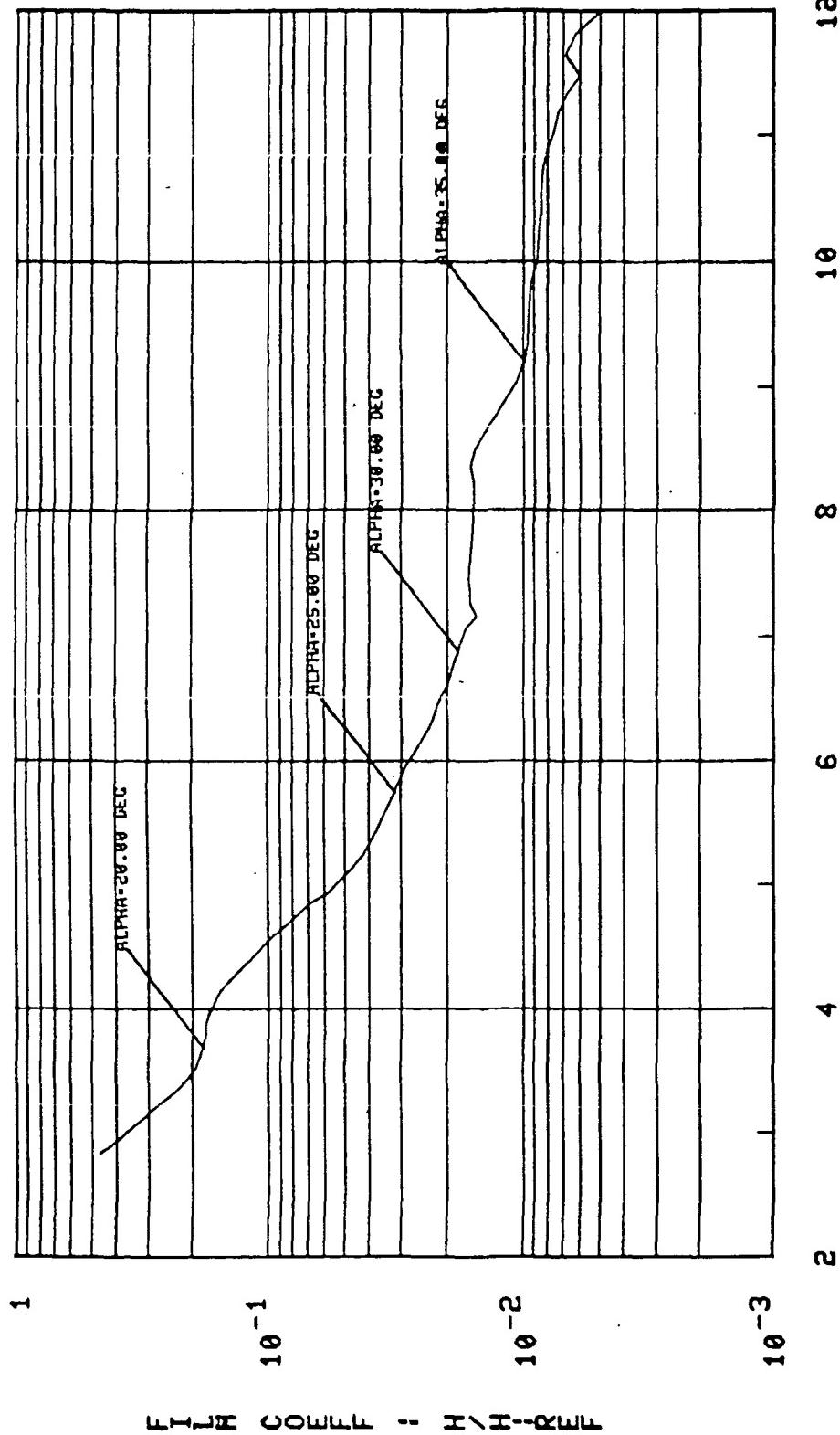
B-270

ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME • 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

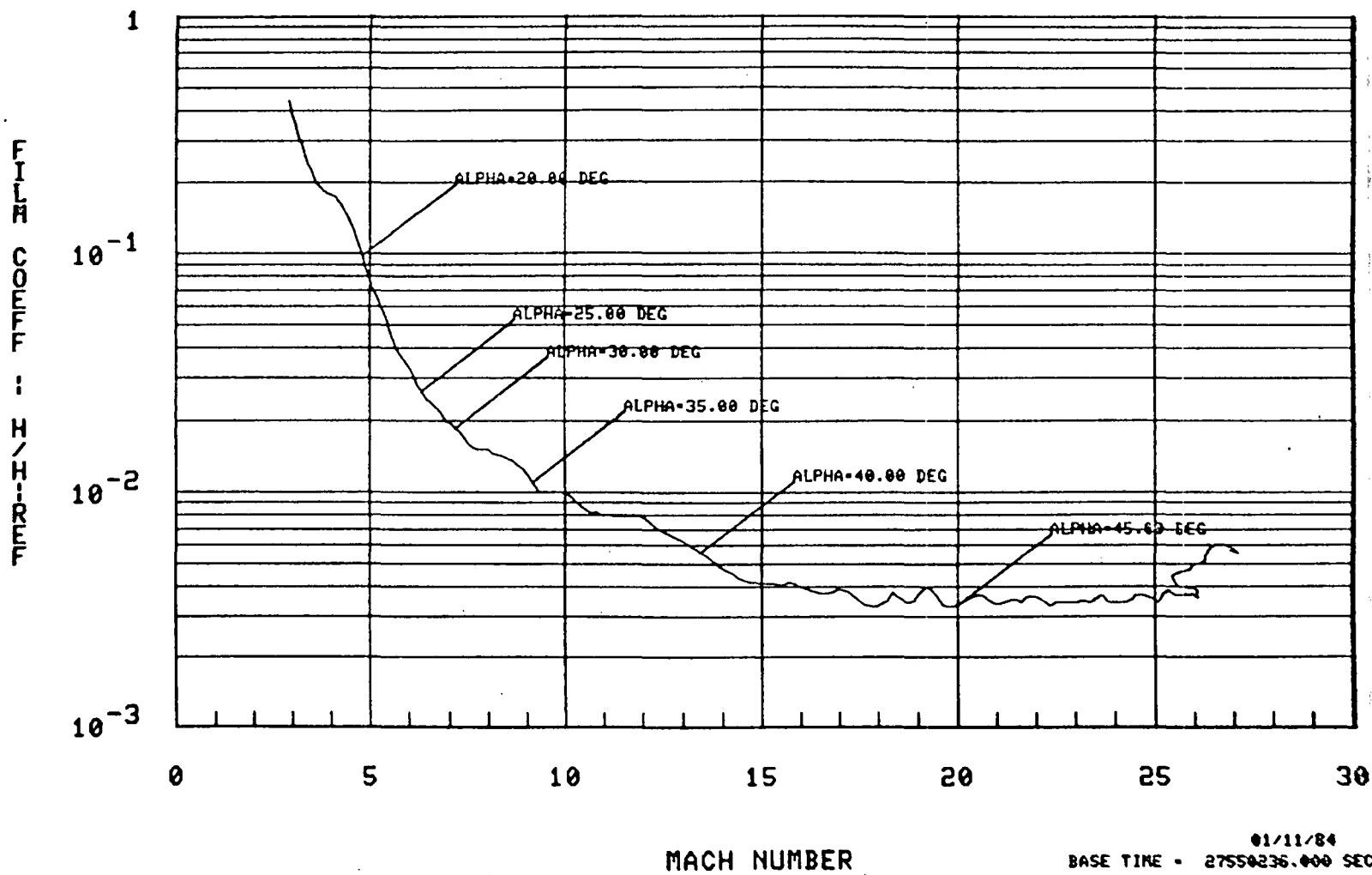
335 835-5598 1-A/H-REF 199511070800



MACH NUMBER BASE TIME • 09449744.0000 SEC. 01/11/84

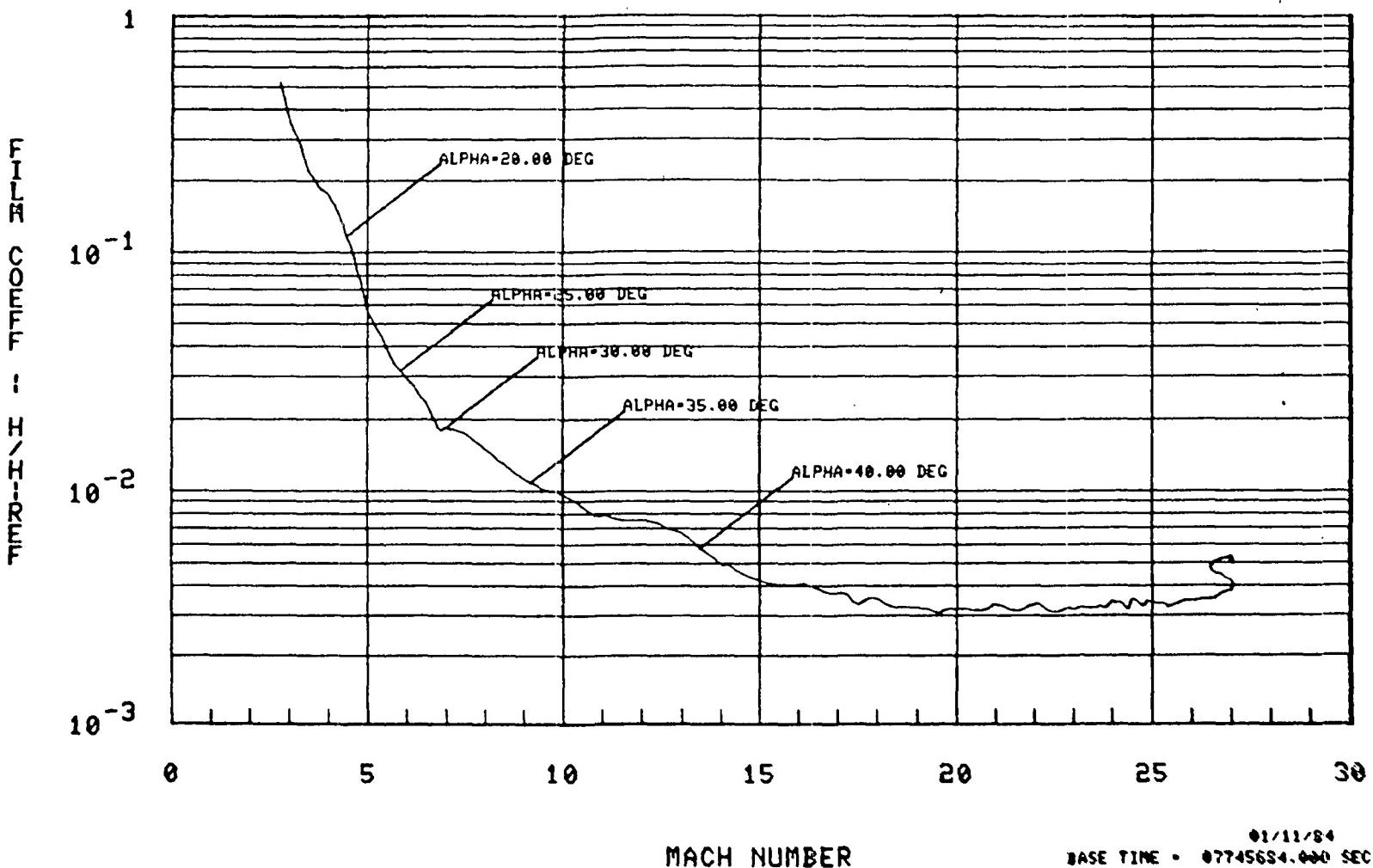
STS-2 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U09T9511A/H-REF 200-1530 SEC



STS-3 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U09T9511A/H-REF 200-1440 SEC

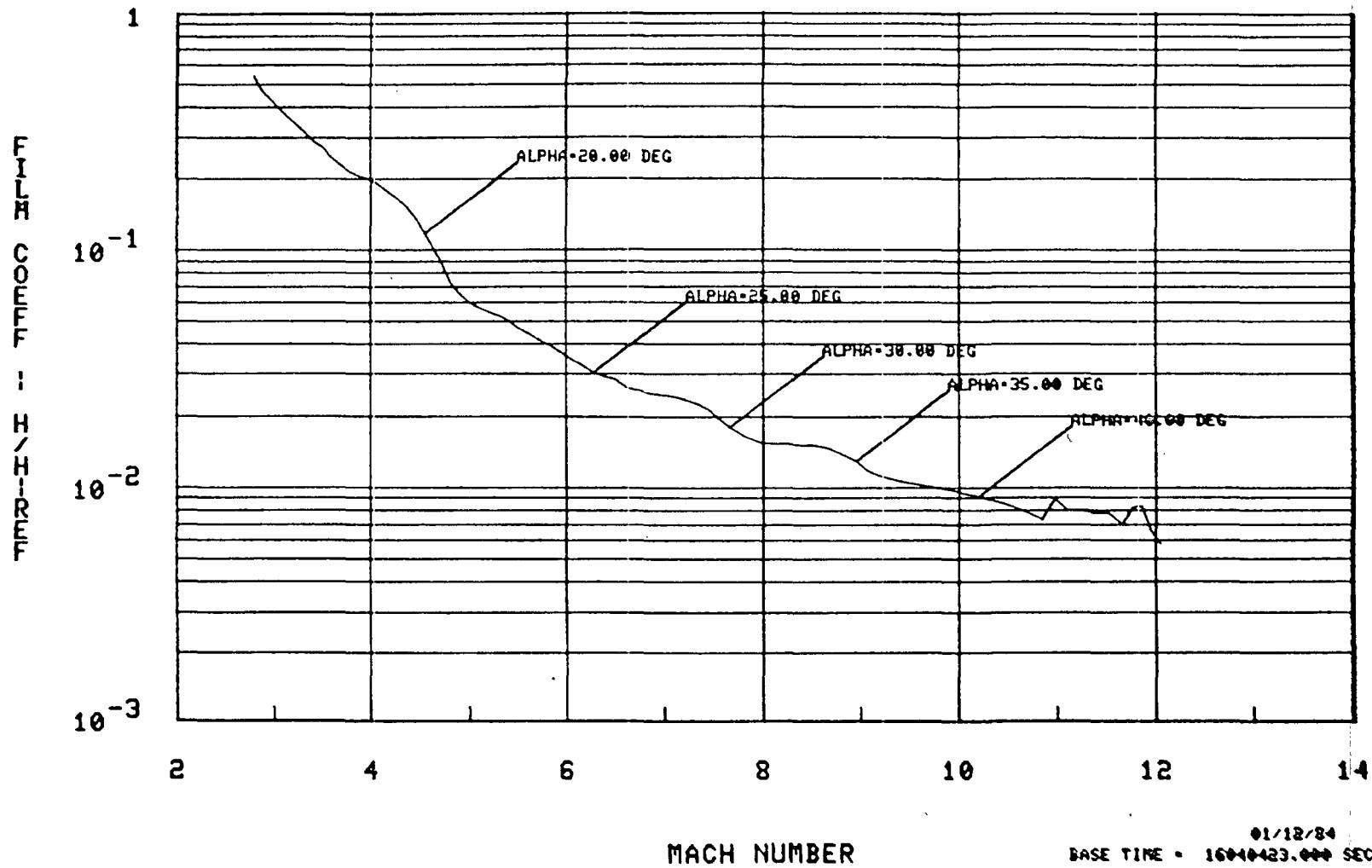


MACH NUMBER

01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U09T9511A/H-REF 965-1360 SEC



B-274

MACH NUMBER

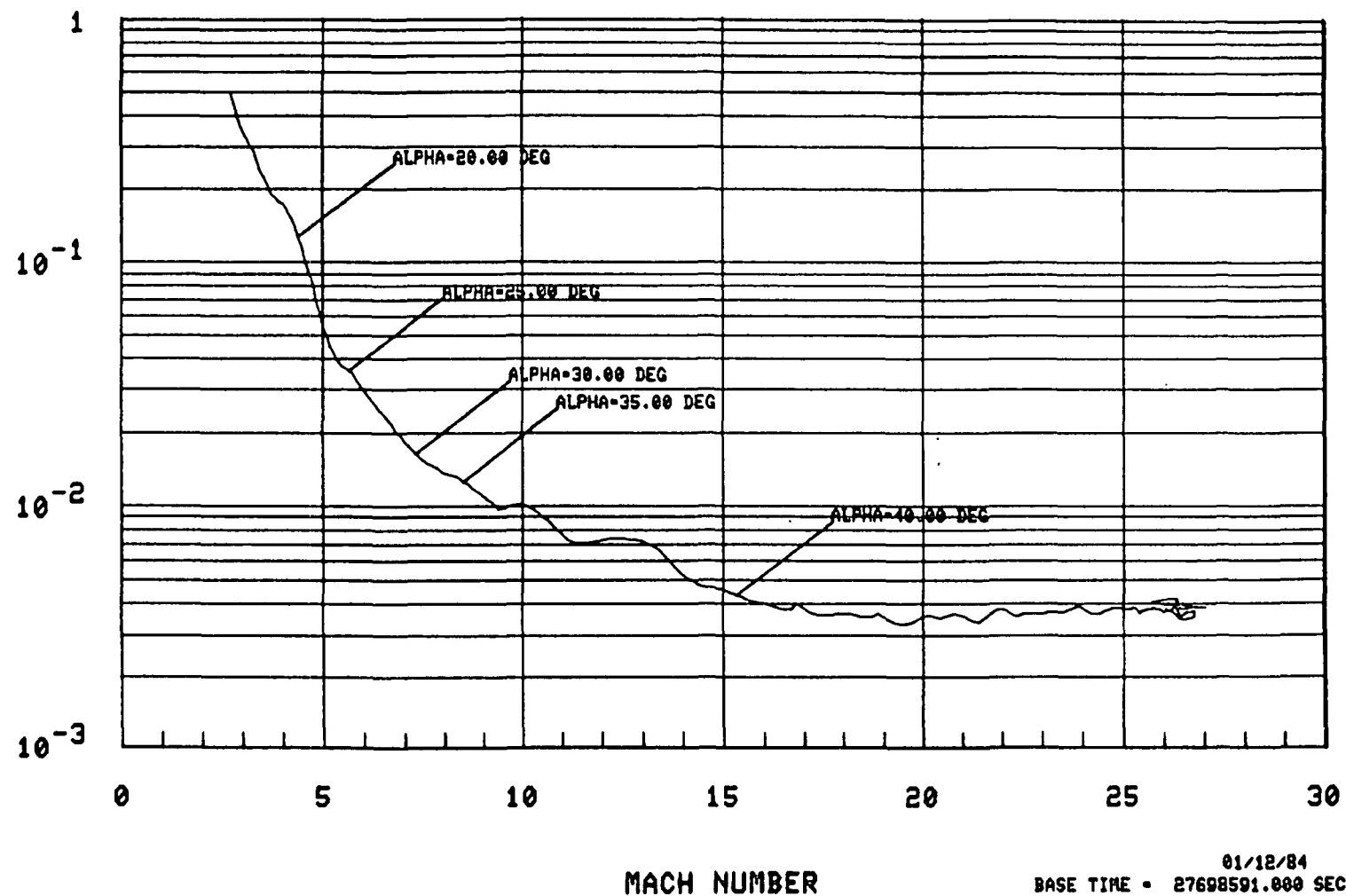
01/12/84
BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U09T9511A/H-REF 150-1430 SEC

WLE COEFF - INVERSE

B-275



MACH NUMBER

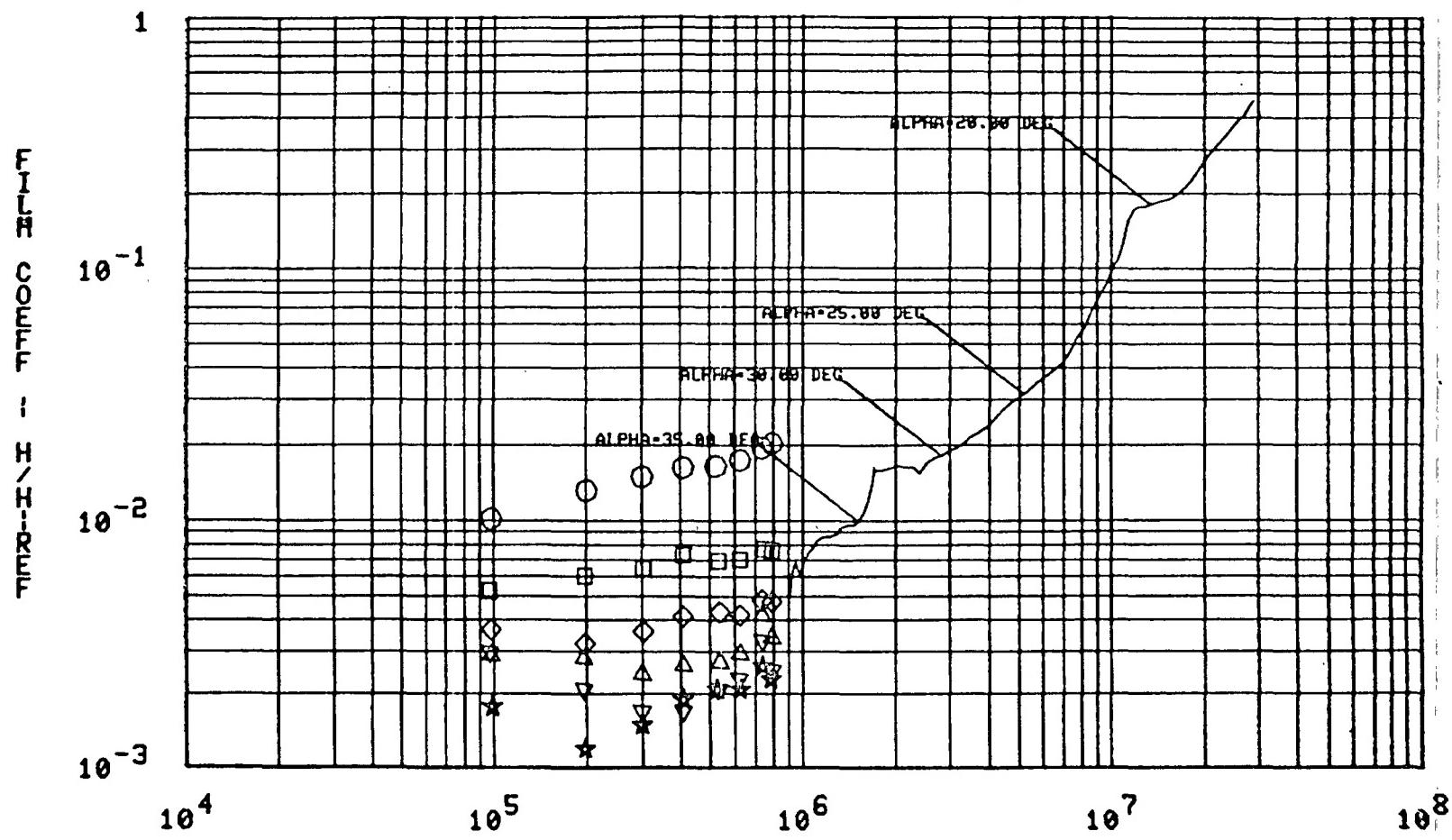
01/12/84
BASE TIME • 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U09T9511A/H-REF 1065-1500 SEC



B-276

REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME • 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

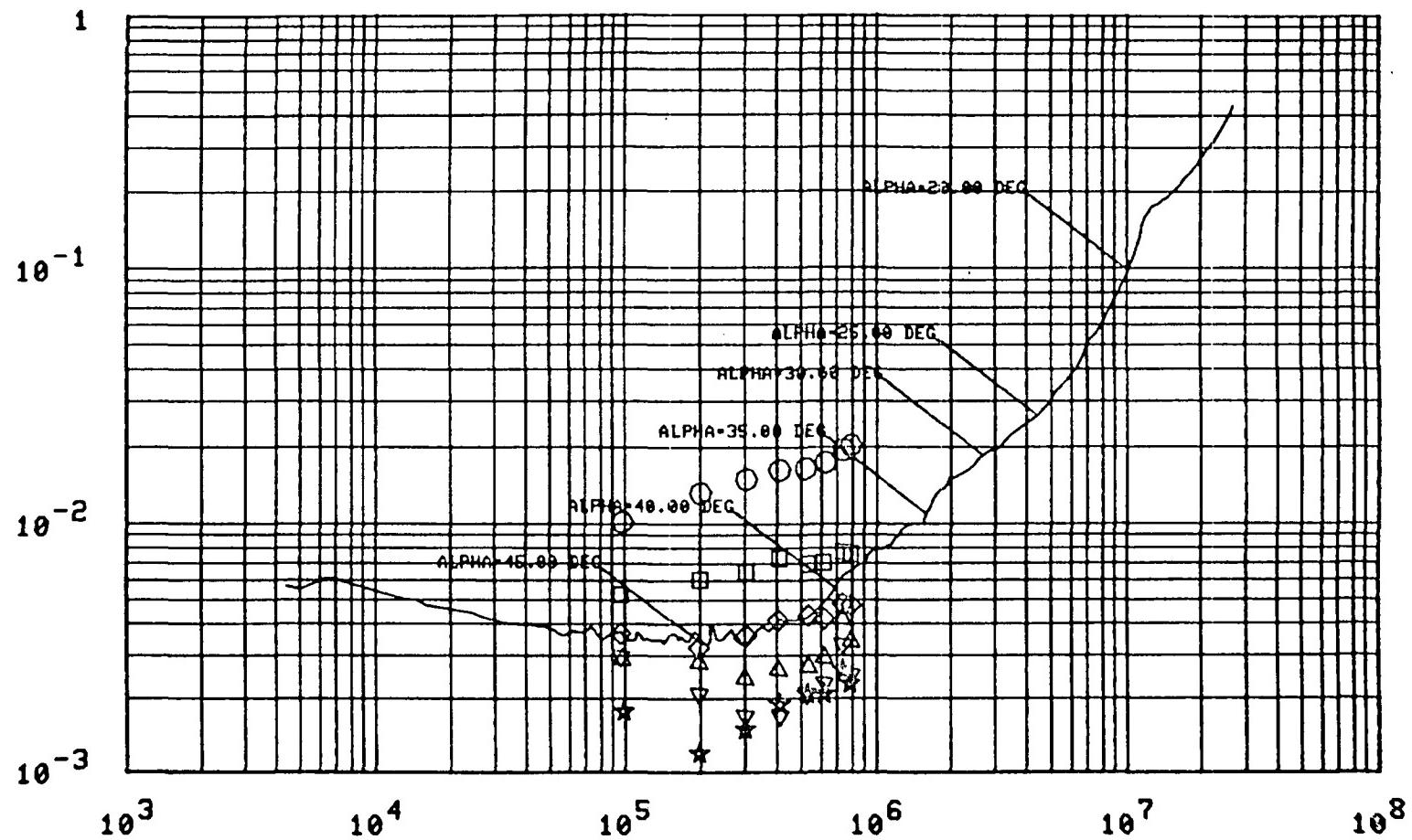
OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U0979511A/H-REF 200-1530 SEC



LINE CONSTRUCTION H/H-REF

B-277



REYNOLDS NUMBER (NS)

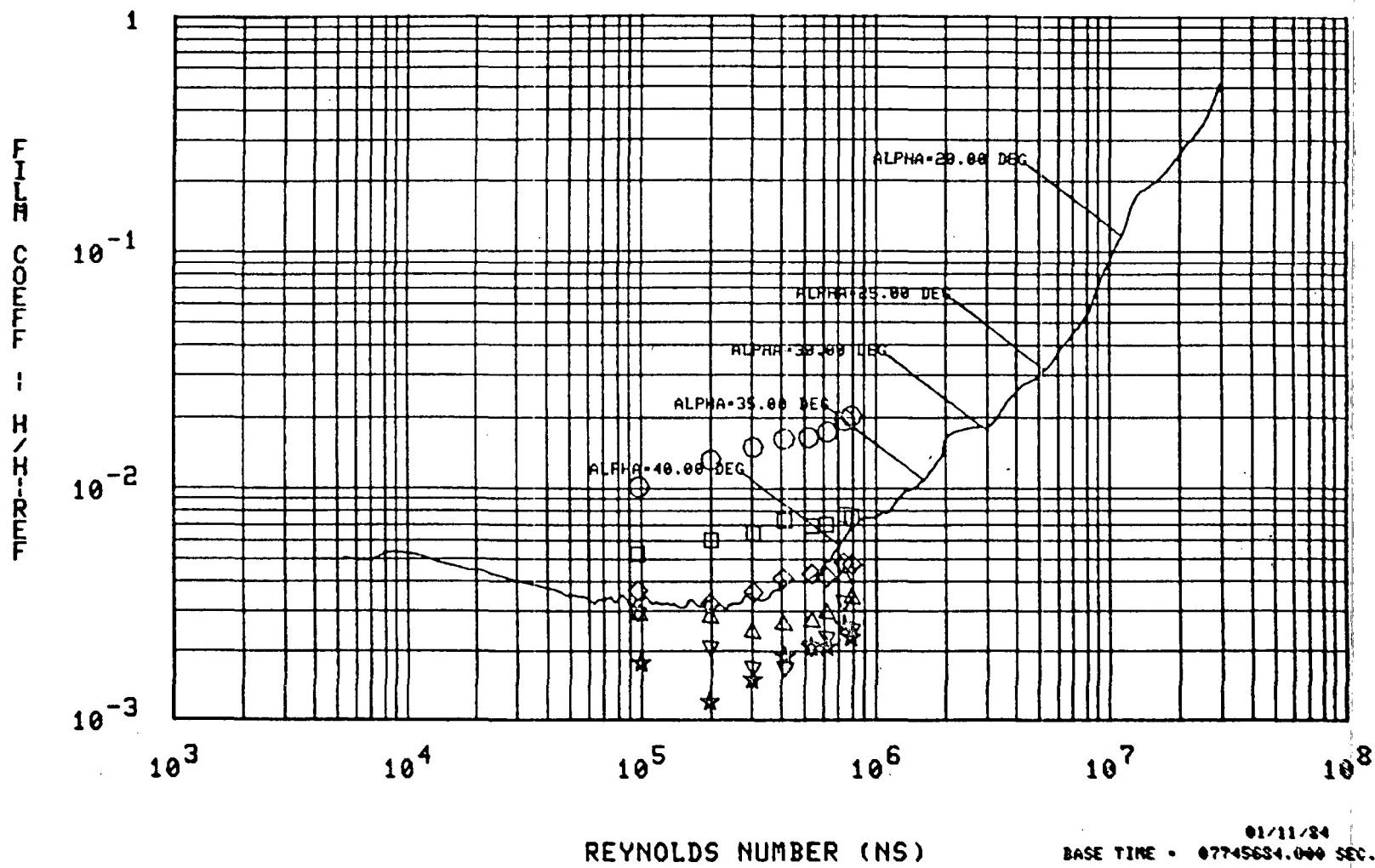
01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U09T9511A/H-REF 200-1440 SEC



B-278

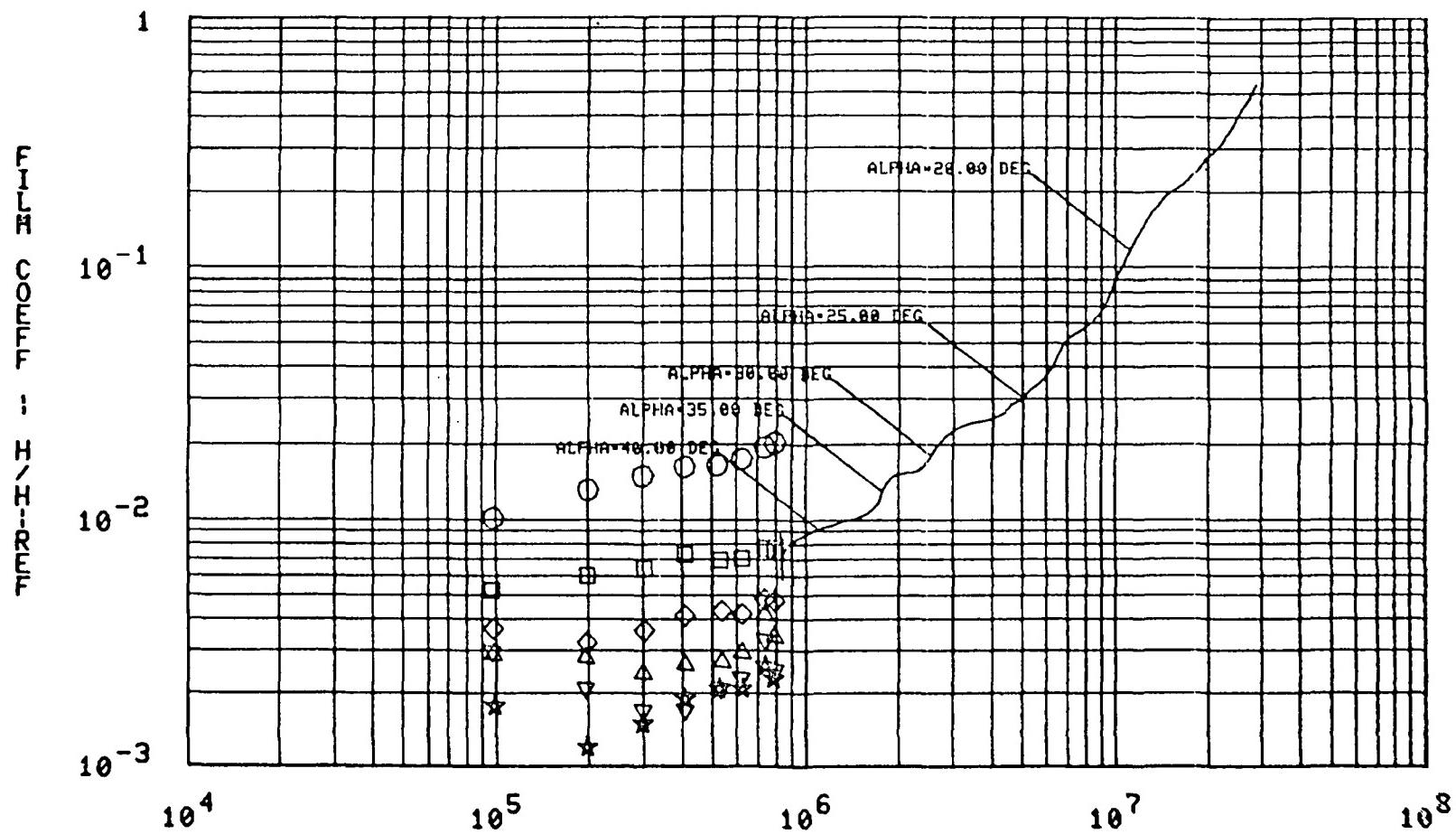
REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME • 077456\\$4.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U09T9511A/H-REF 965-1360 SEC



B-279

REYNOLDS NUMBER (NS)

01/12/84

BASE TIME = 16040423.000 SEC.

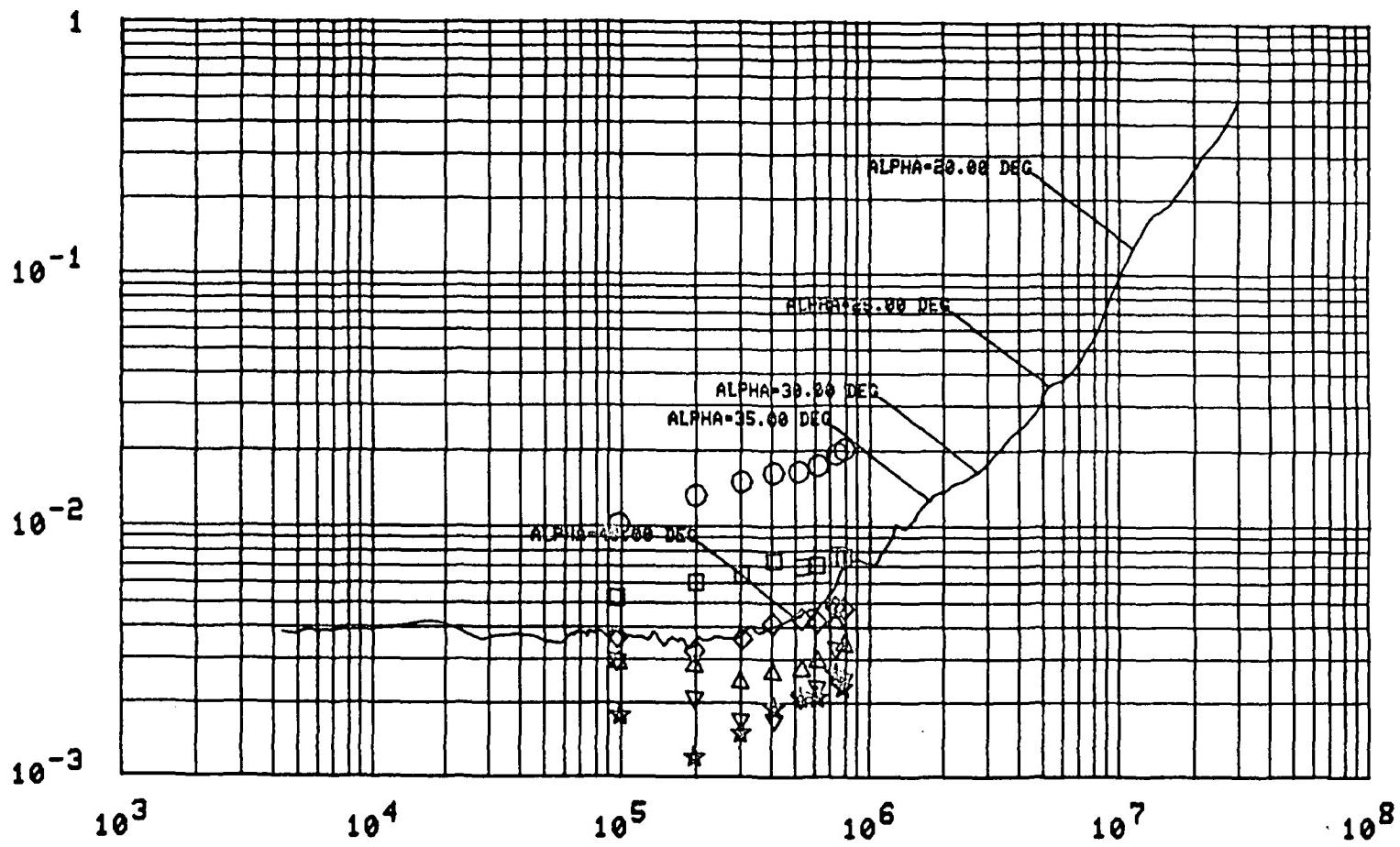
STS-5 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U09T9511A/H-REF 150-1430 SEC



WAKE CONDUIT - H-H-CONDUIT



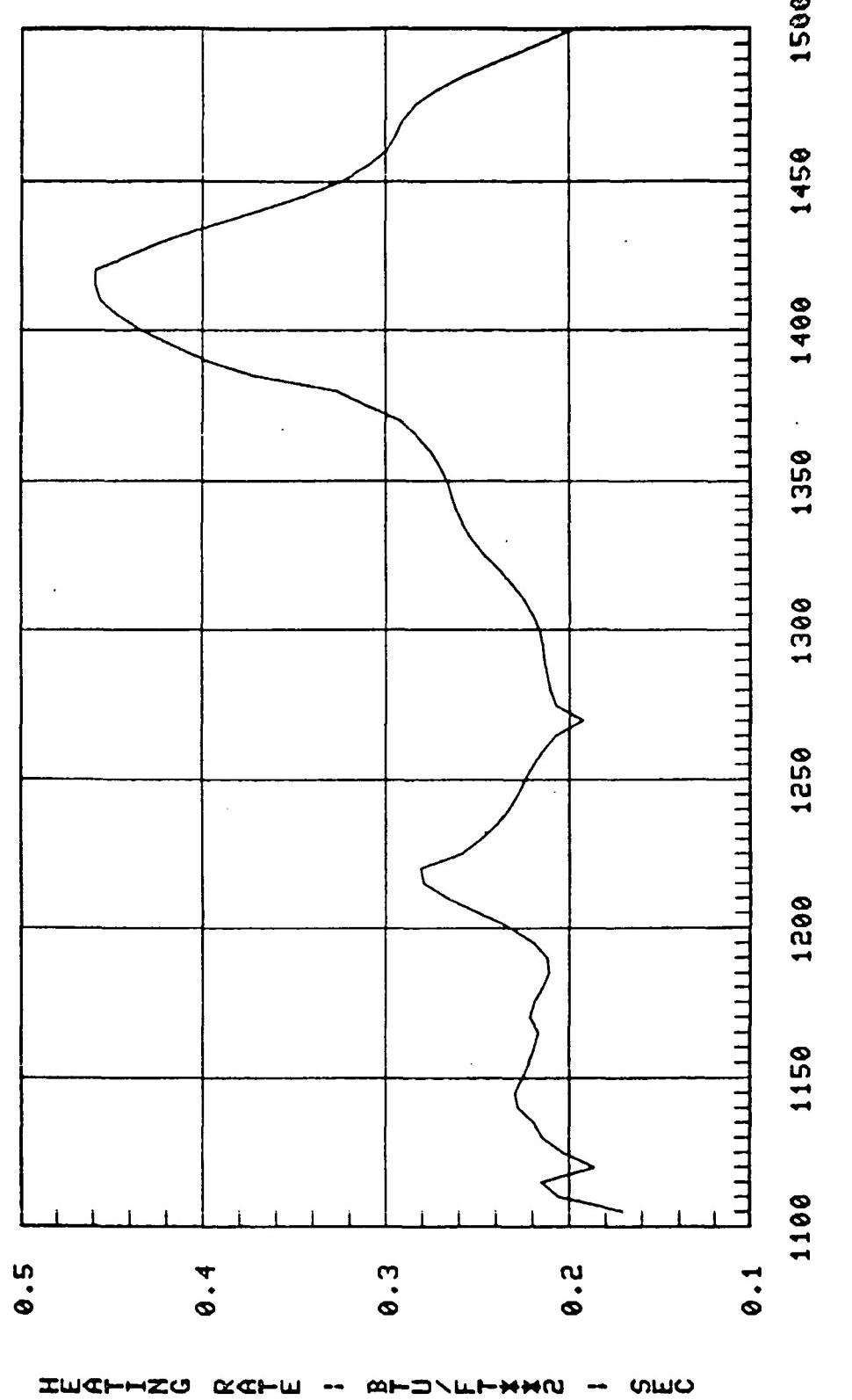
B-280

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 27698591.000 SEC.

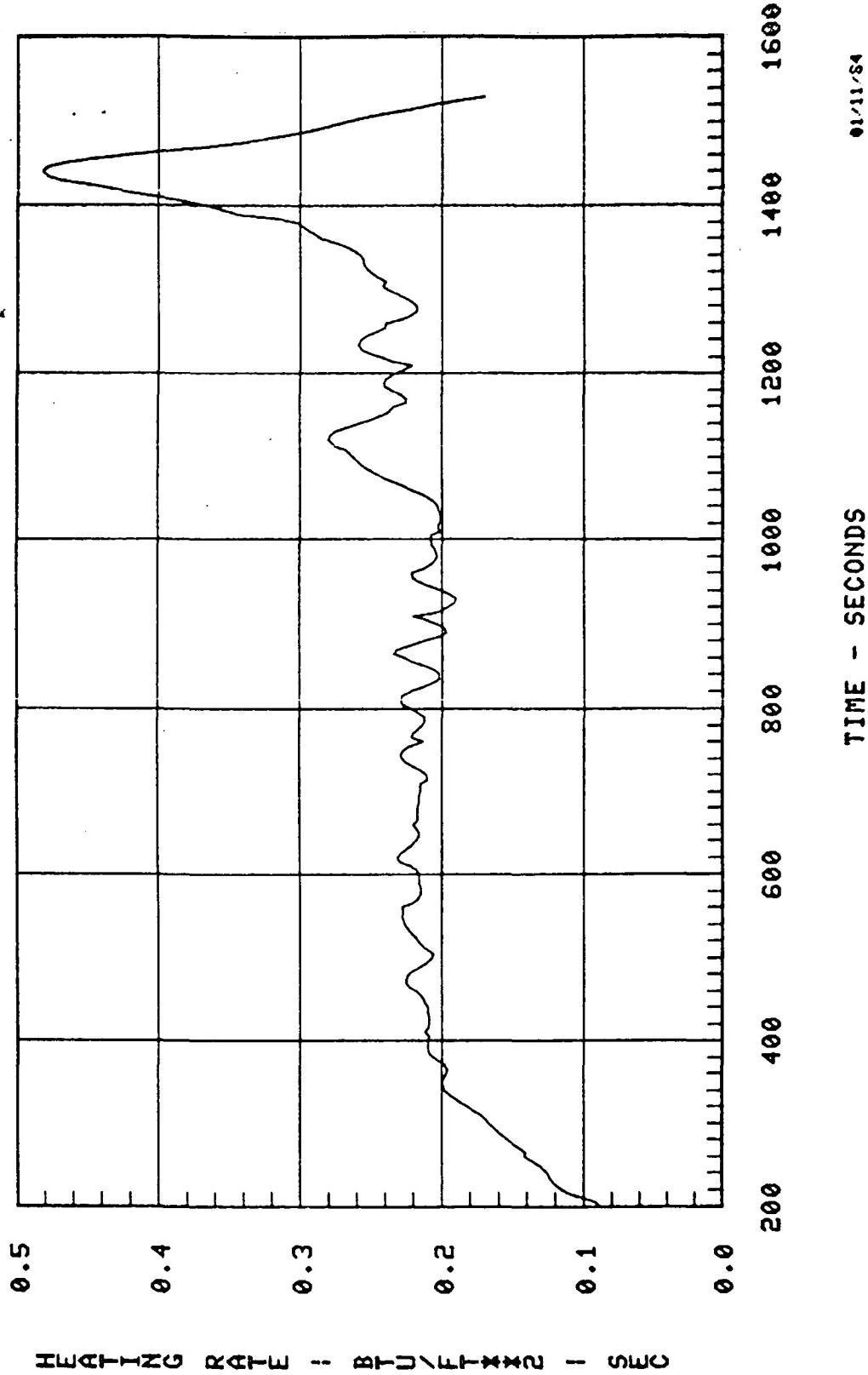
STS-1 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U69T9511A



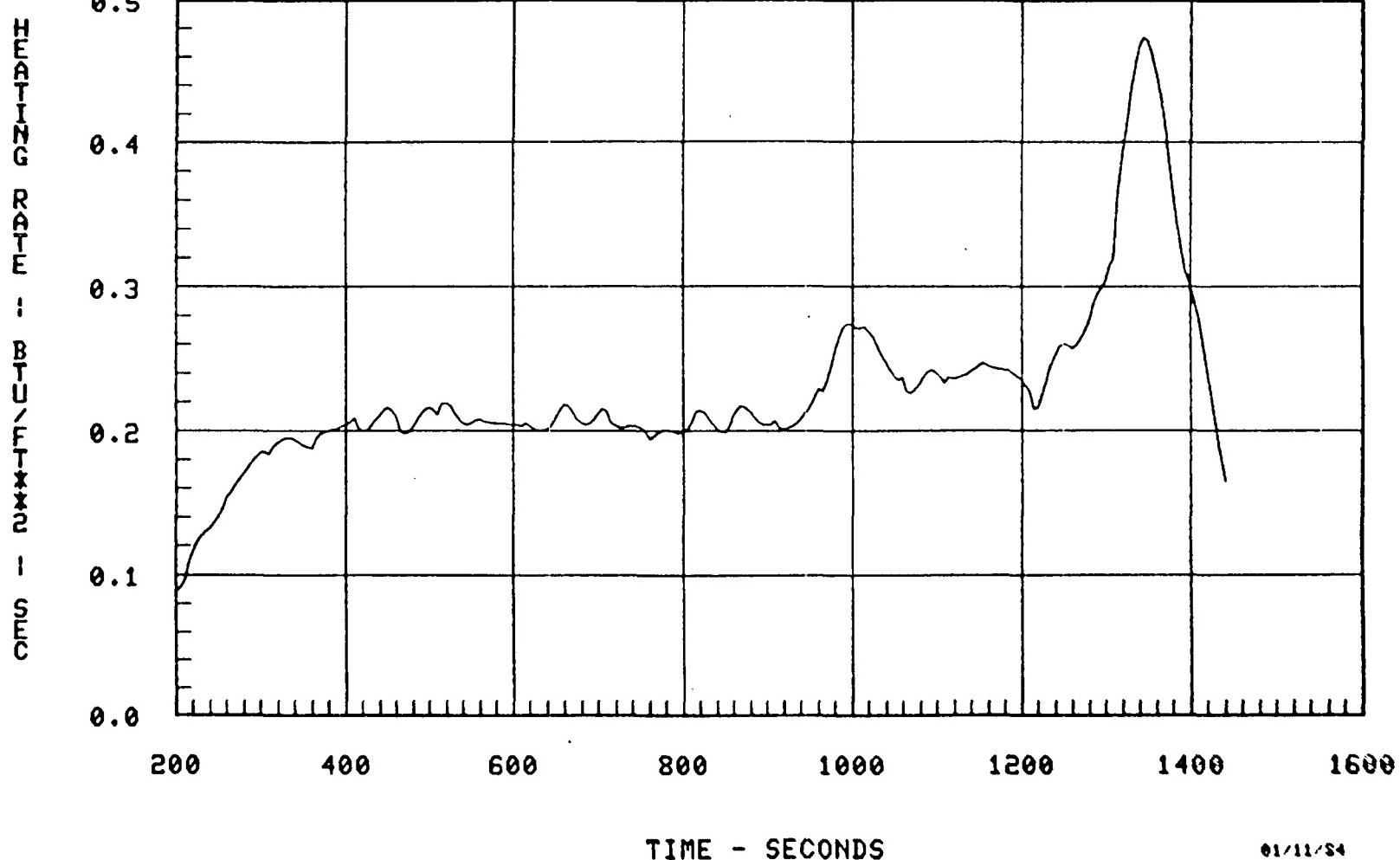
STS-2 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U99T9511A



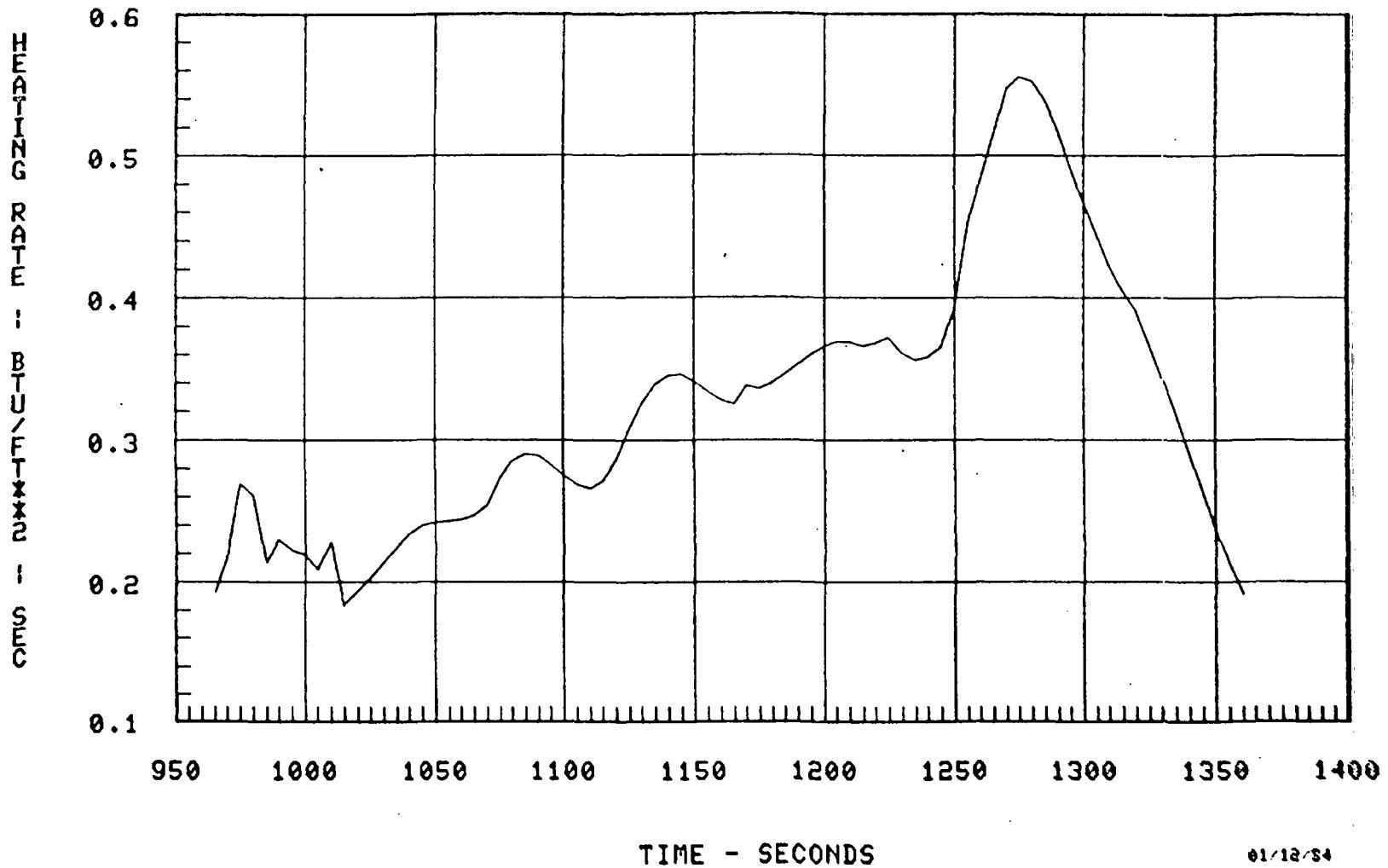
STS-3 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U09T9511A



STS-4 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

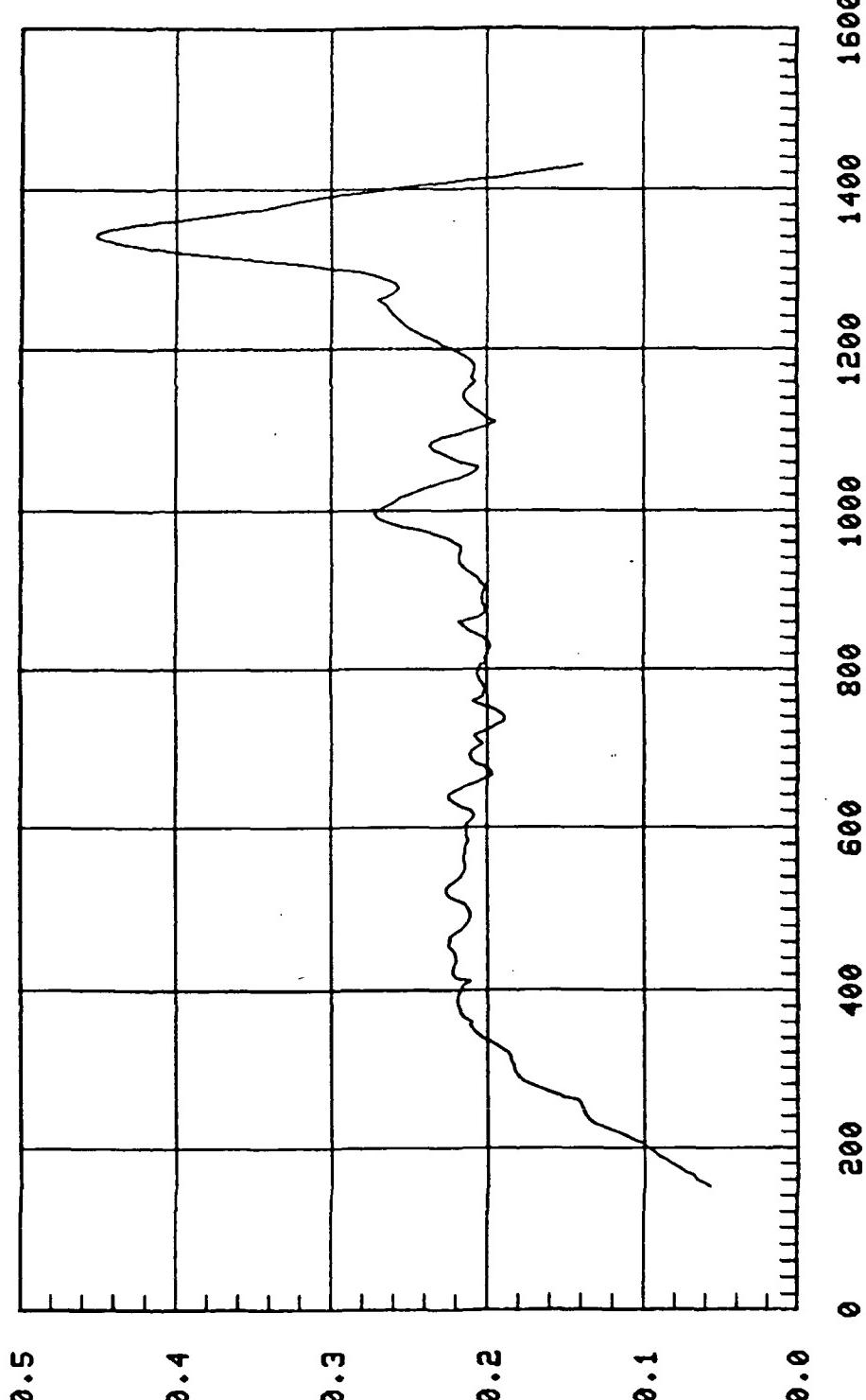
U09T9511A



01/12/84

STS-5 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

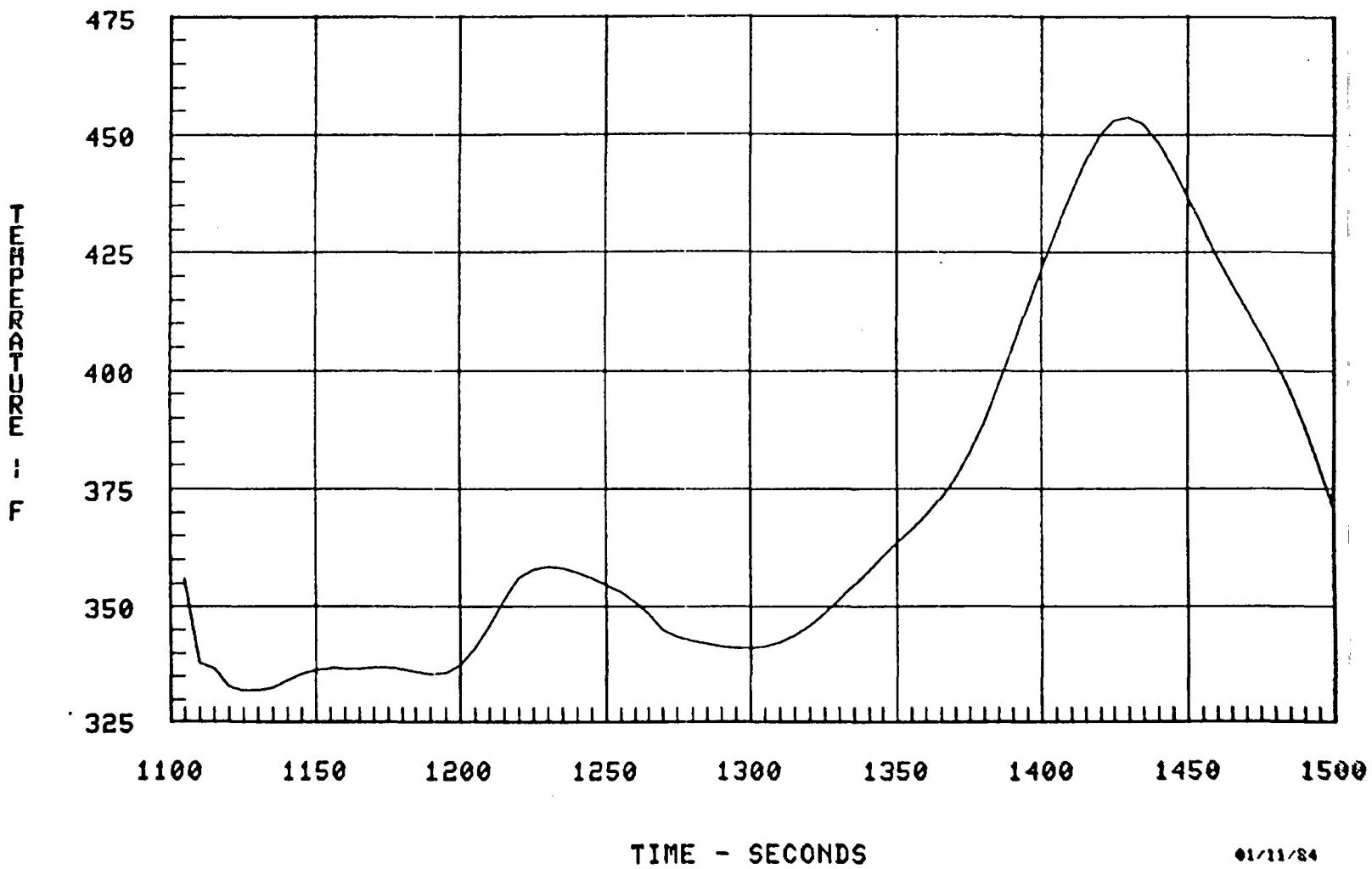
V99T9511A



DATA - ZONE 800 - 84000 - 84000 - 84000

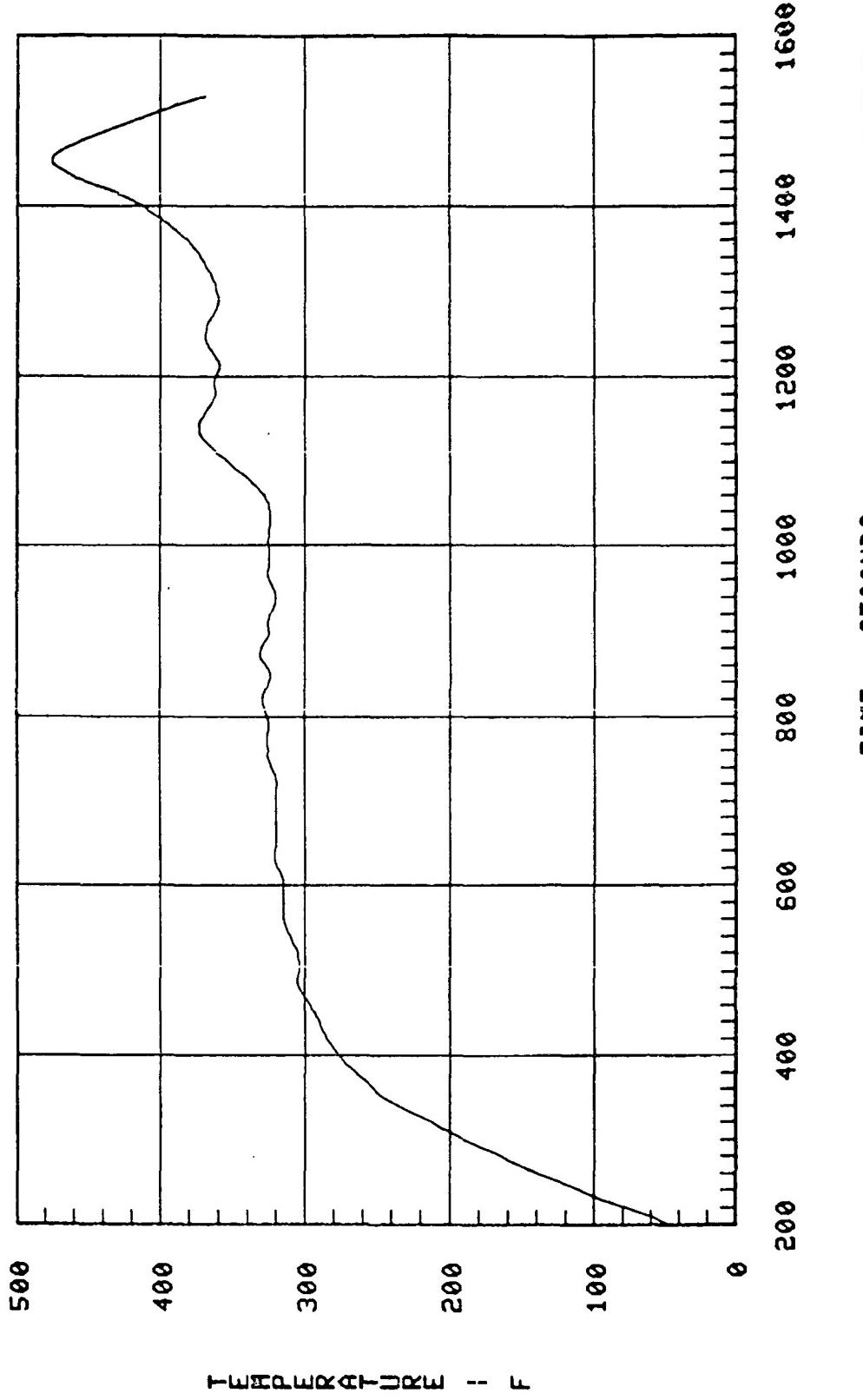
STS-1 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U09T9511A



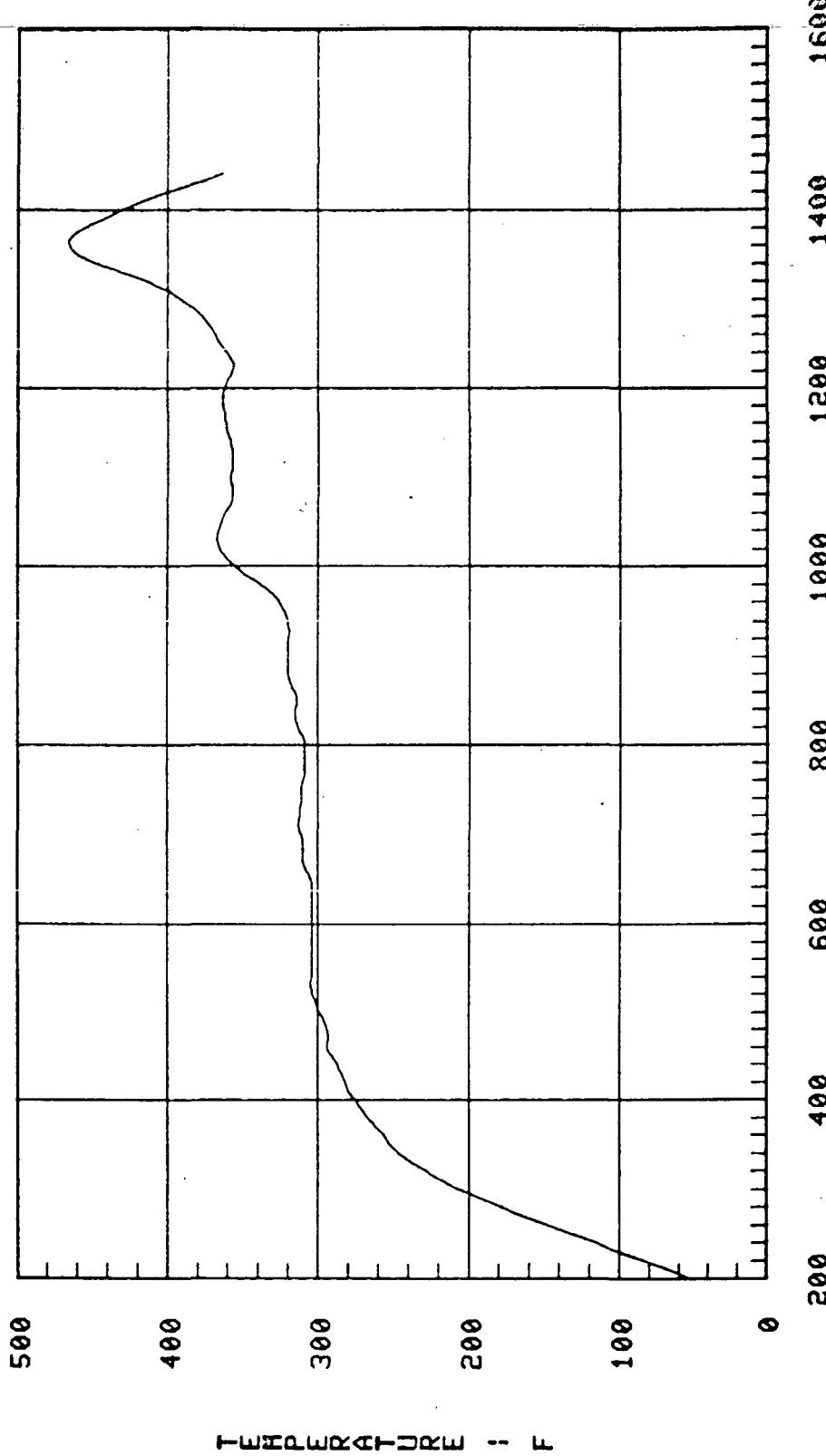
STS-2 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U09T9511A



STS-3 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

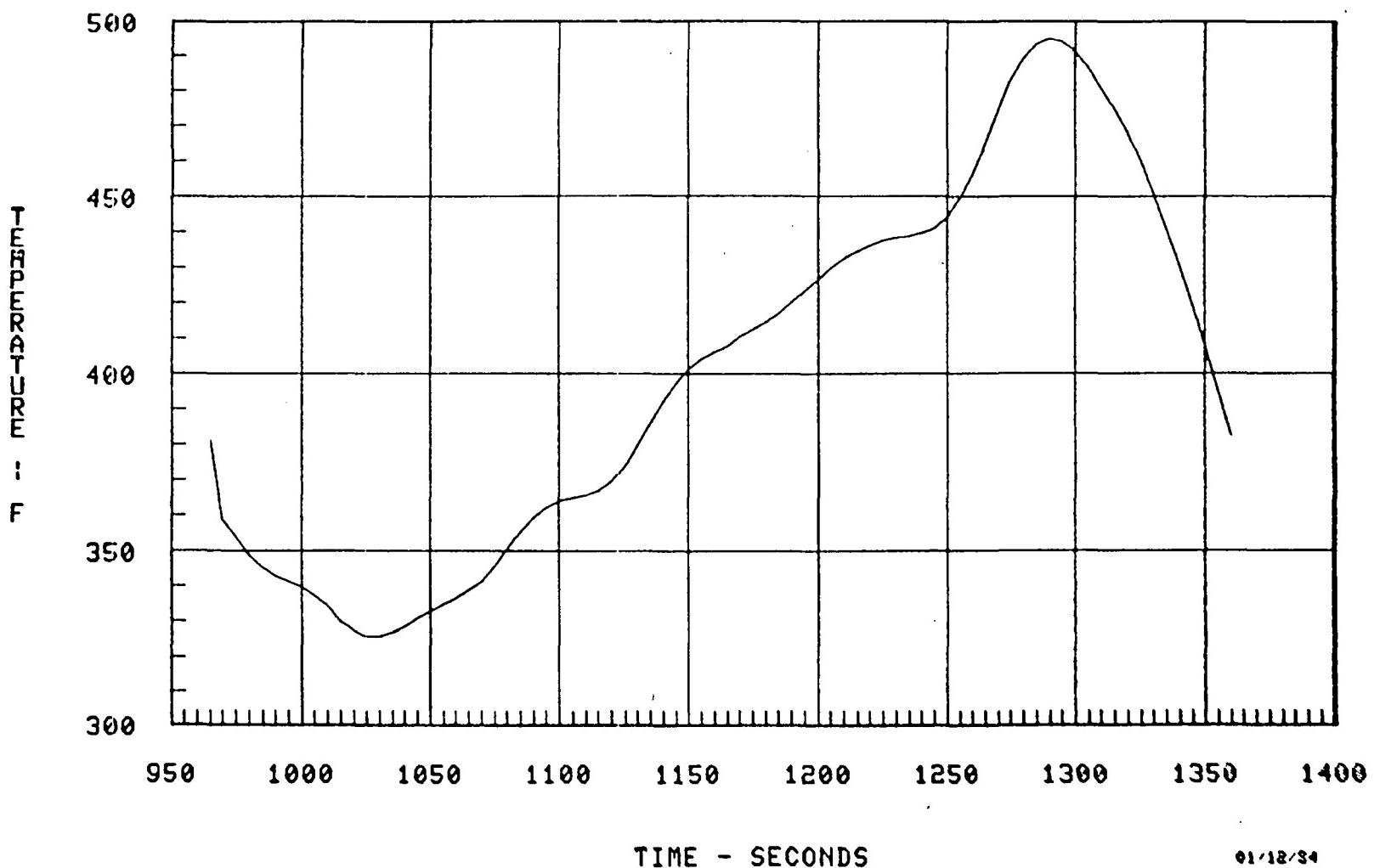
V09T9511A



01/11/84

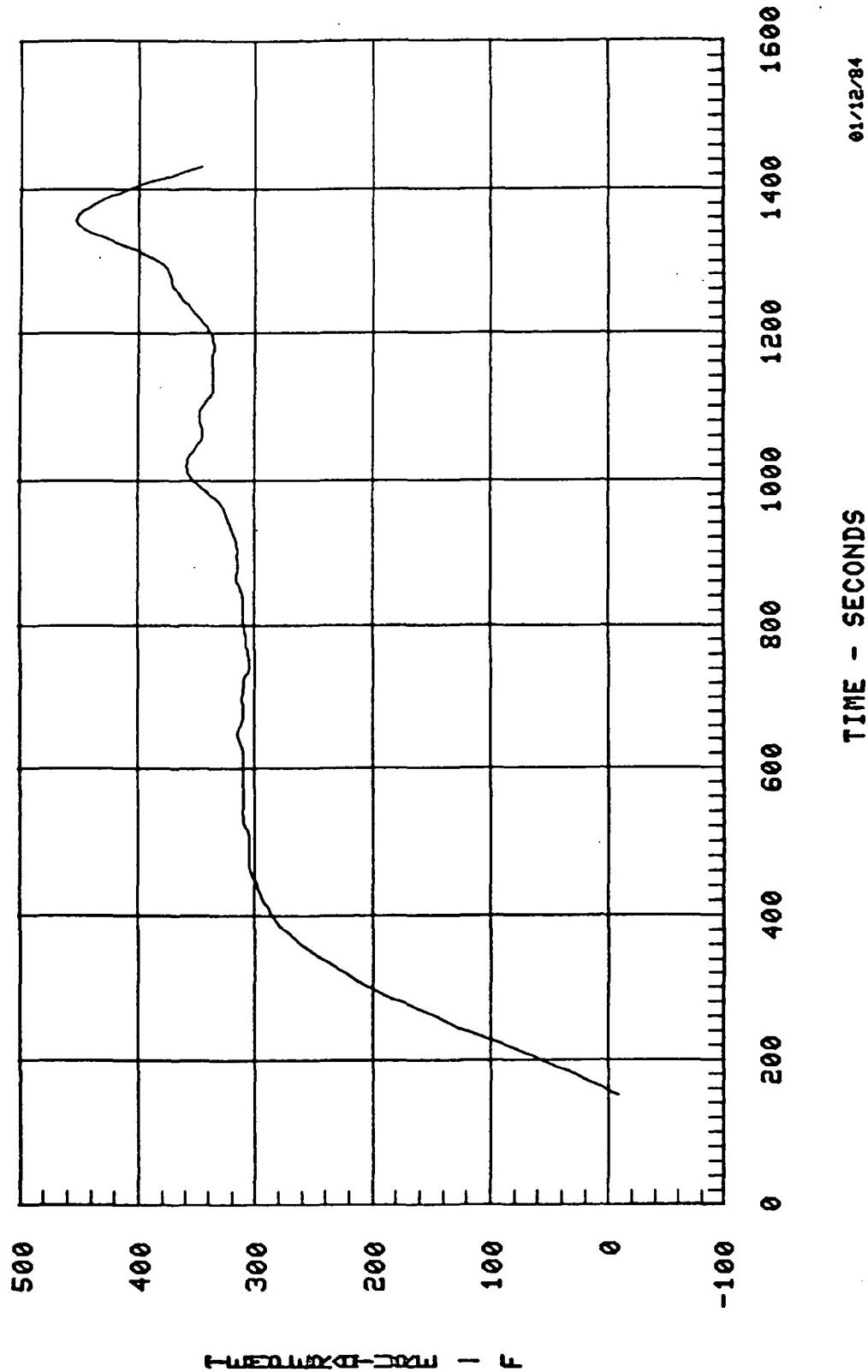
STS-4 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U09T9511A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.67) Z=400

U99T9511A



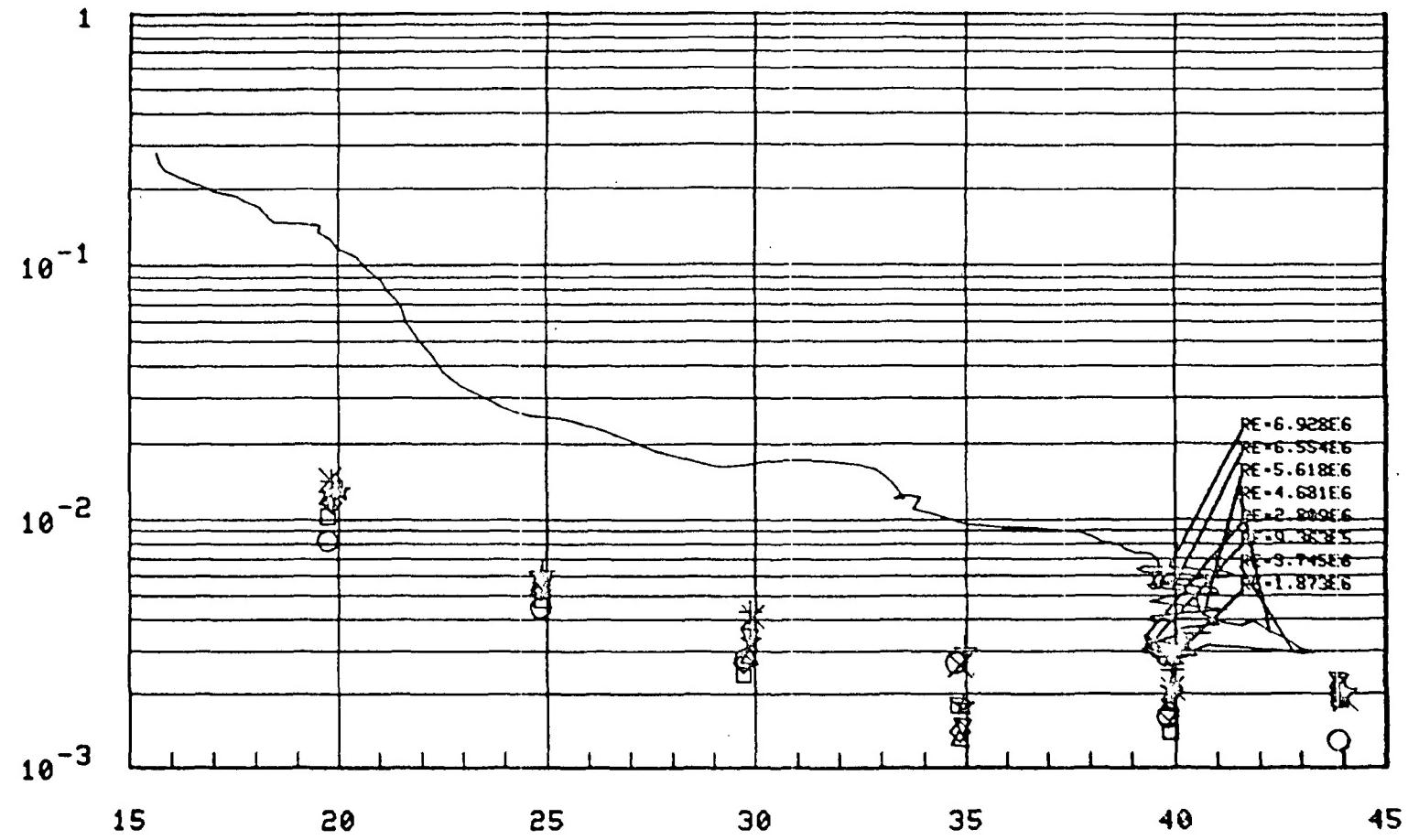
01/12/84

STS-3 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9238A/H-REF 200-1440 SEC

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B-291

ANGLE-OF-ATTACK - DEG

01/11/84

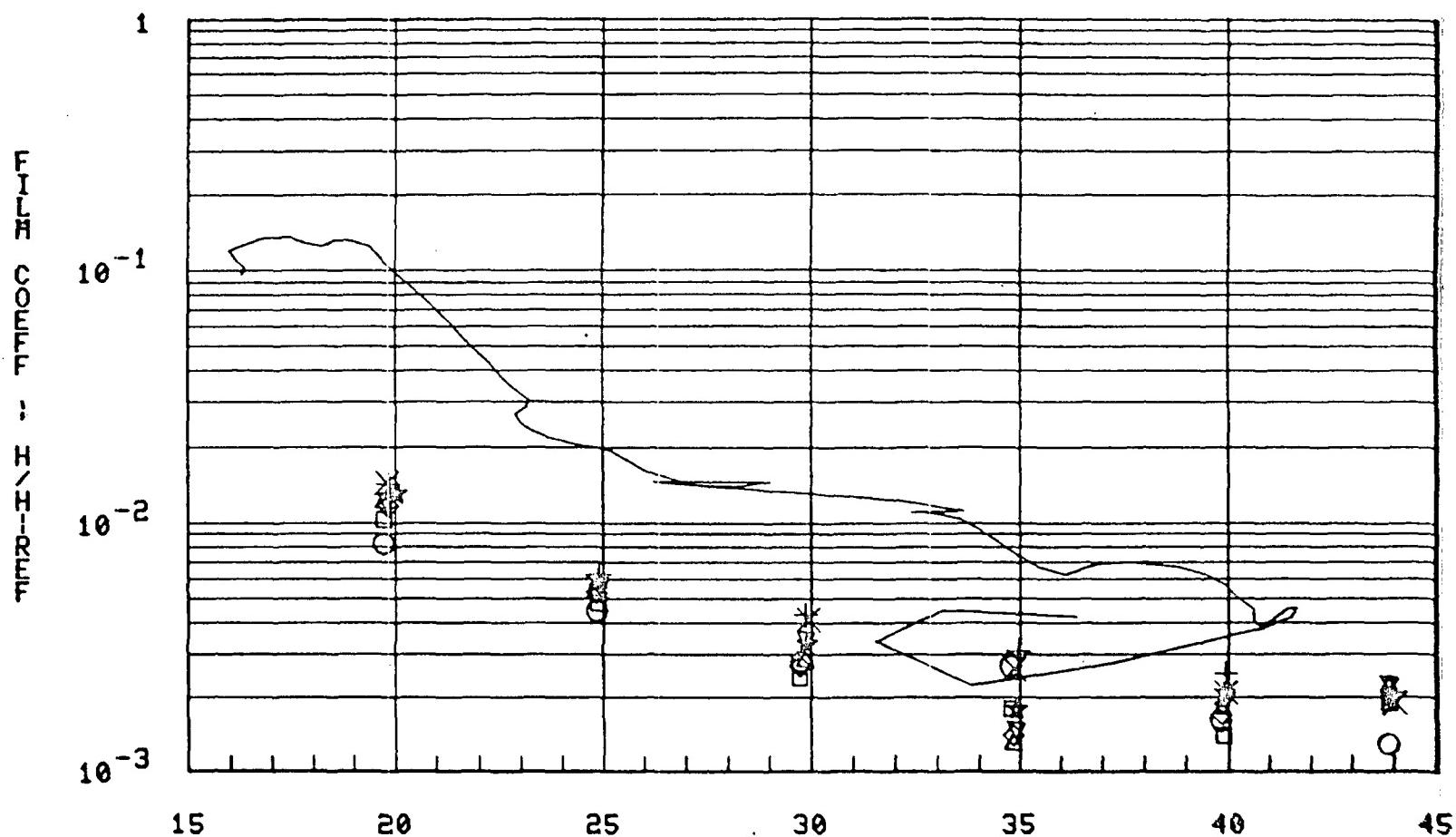
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

O □ ◇ △ ★ + X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9238A/H-REF 965-1360 SEC



B-292

ANGLE-OF-ATTACK - DEG

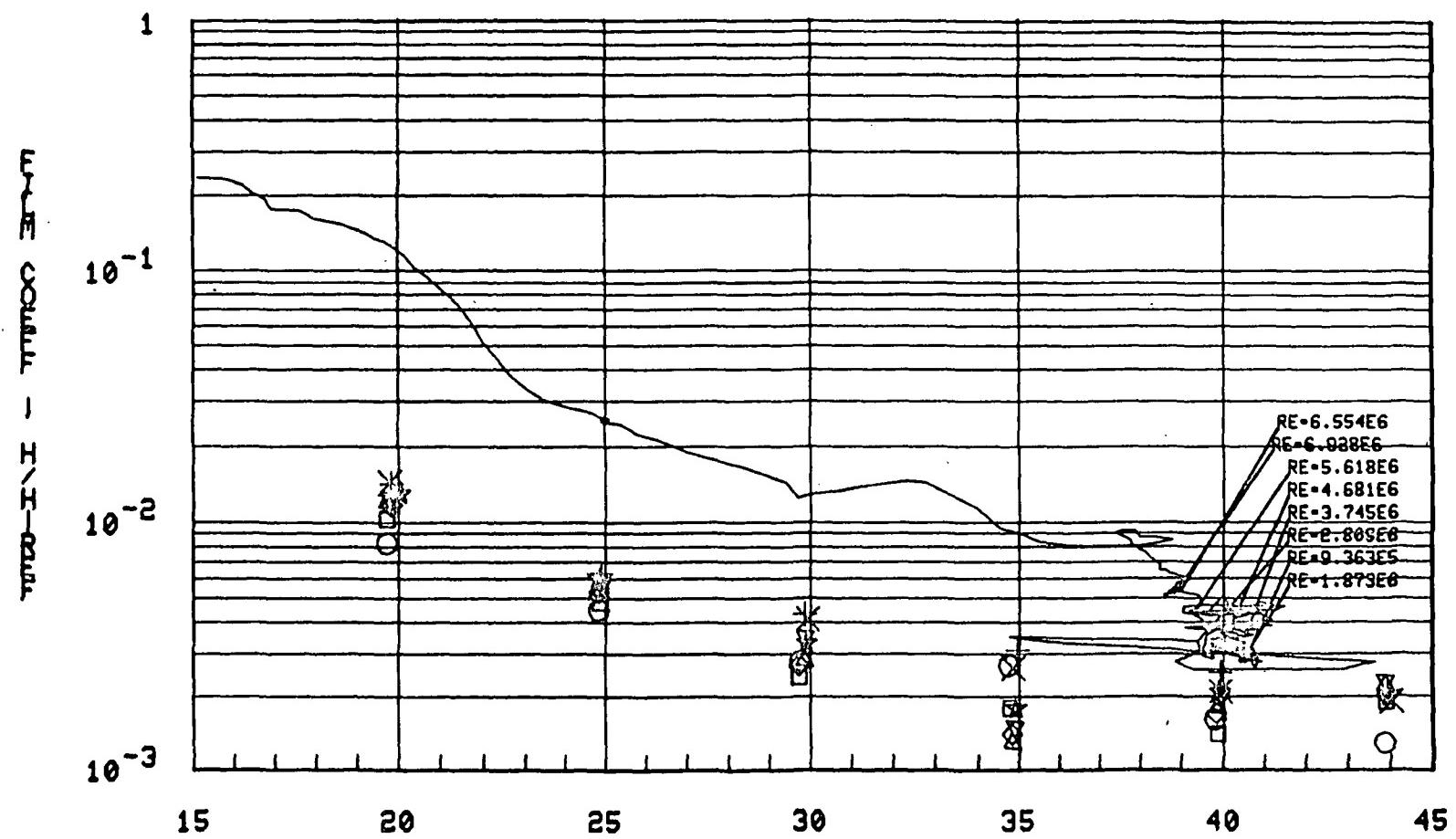
01/12/84
 BASE TIME = 16949423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9238A/H-REF 150-1430 SEC

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B-293

ANGLE-OF-ATTACK - DEG

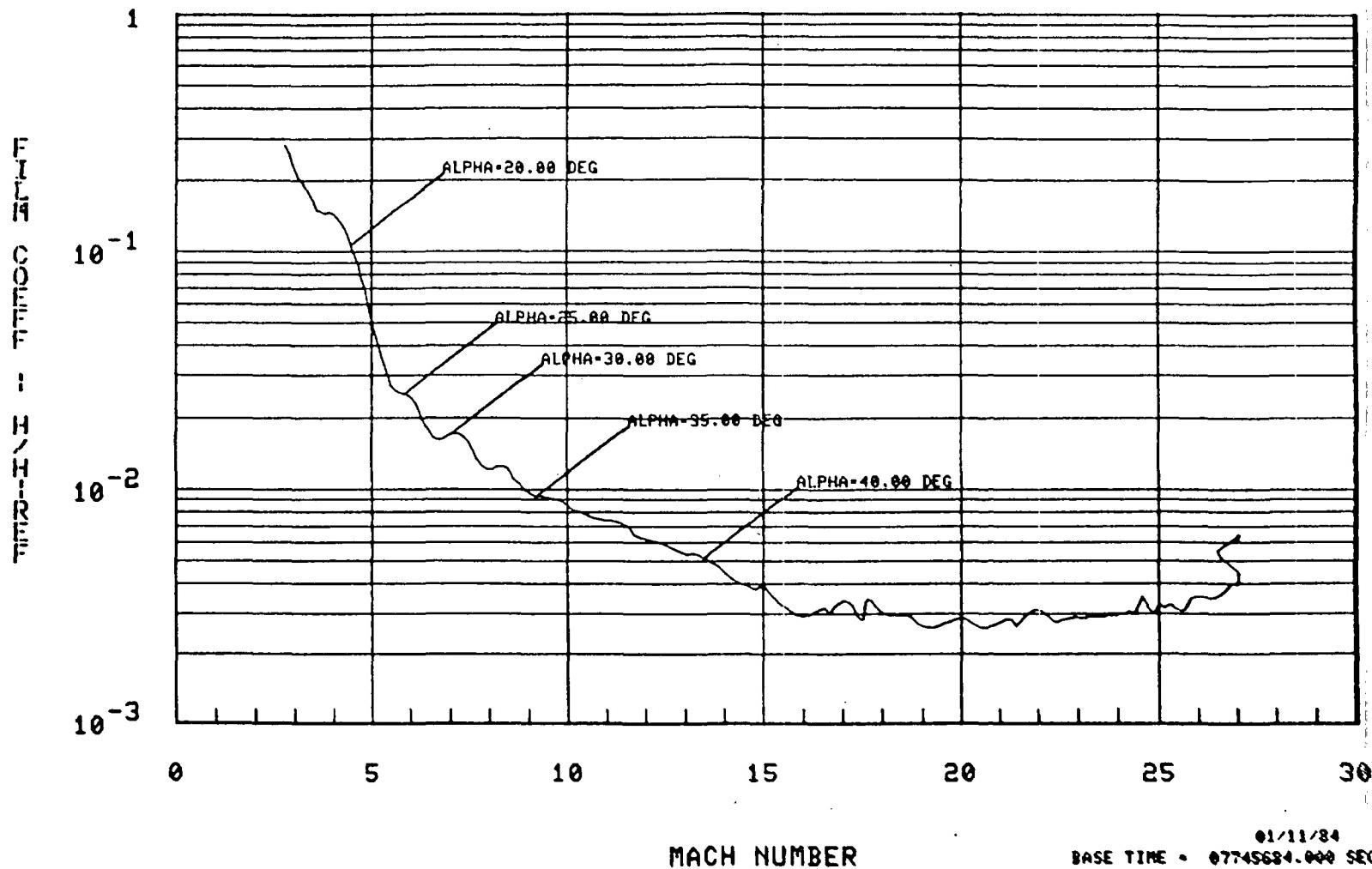
01/12/84

BASE TIME • 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

V07T9238A/H-REF 200-1440 SEC

B-294

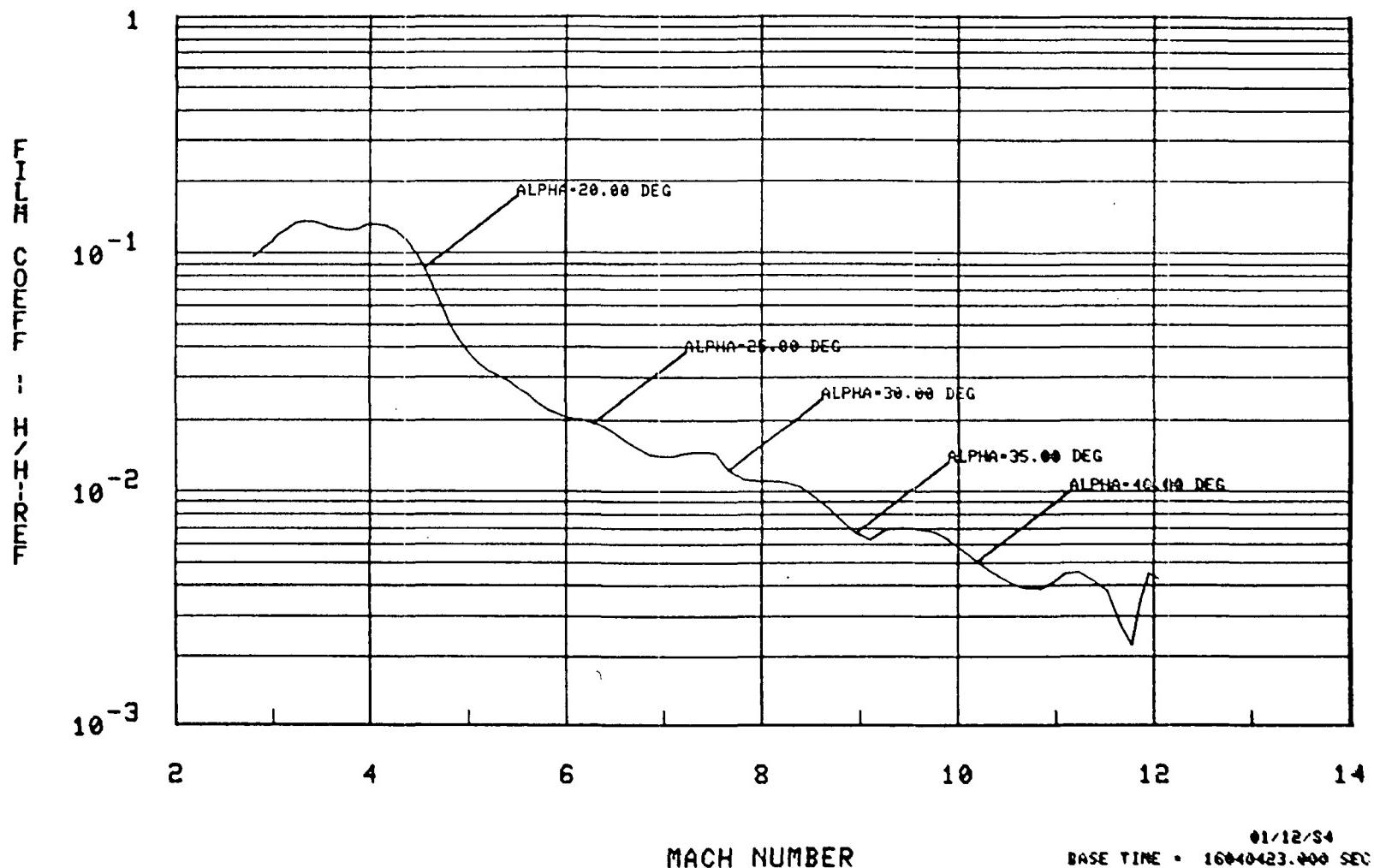


MACH NUMBER

01/11/84
BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

U07T9238A/H-REF 965-1360 SEC

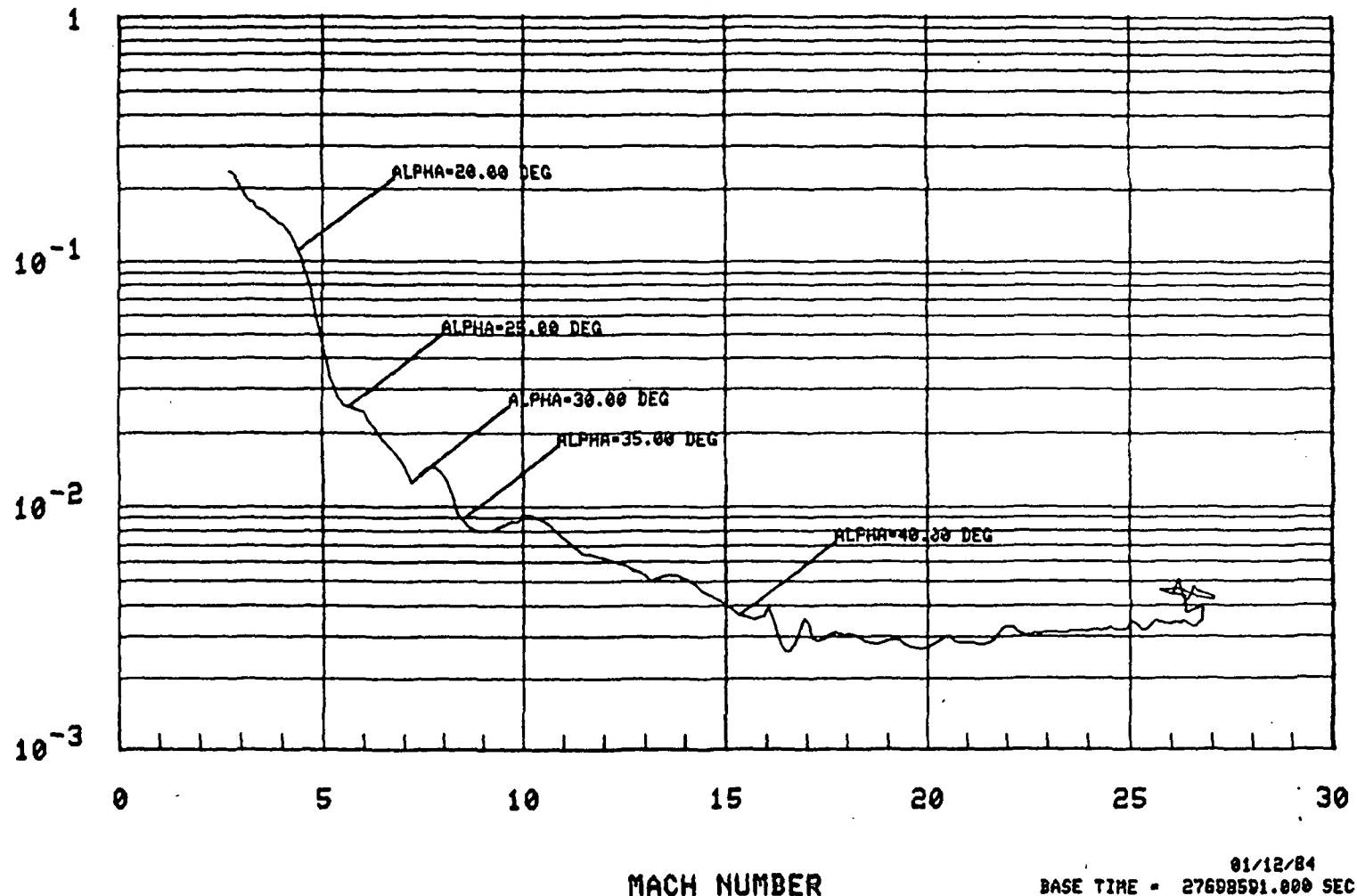


STS-5 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

U07T9238A/H-REF 150-1430 SEC

WAVE CONVERGE - H-REF

B-296



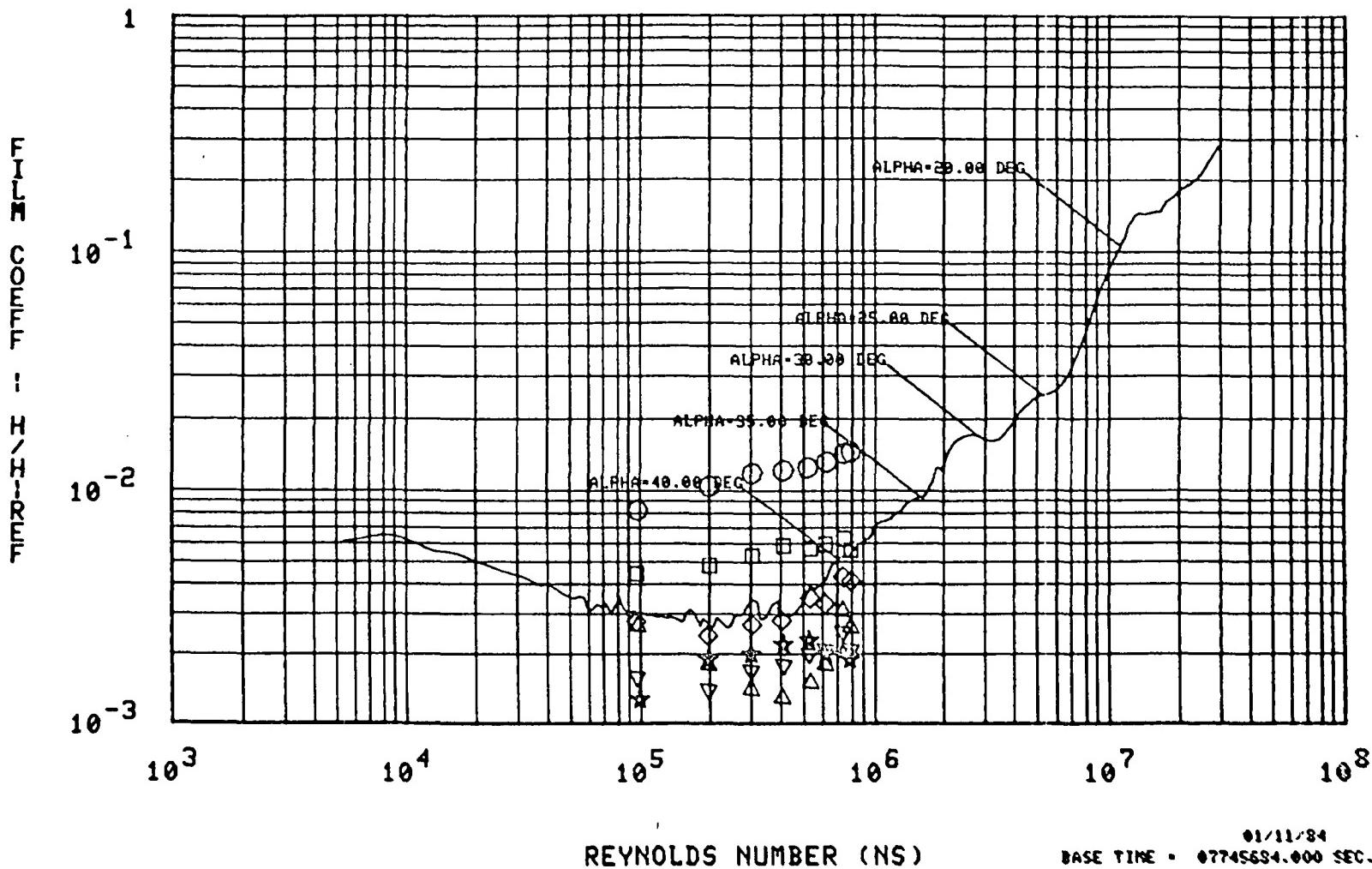
01/12/84
BASE TIME = 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

V07T9238A/H-REF 280-1440 SEC



B-297

REYNOLDS NUMBER (NS)

01/11/84

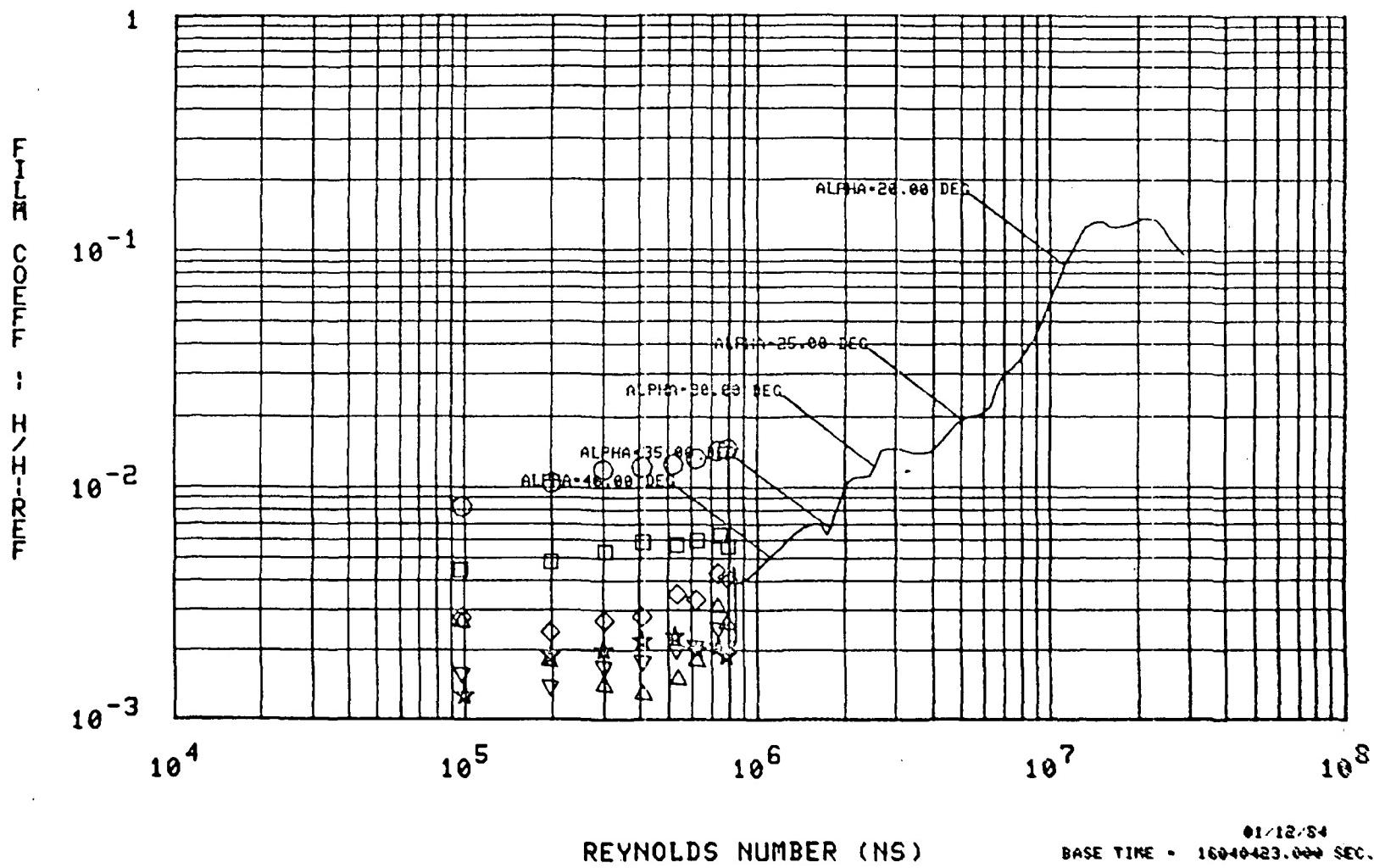
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9238A/H-REF 965-1360 SEC



B-298

REYNOLDS NUMBER (NS)

01/12/84

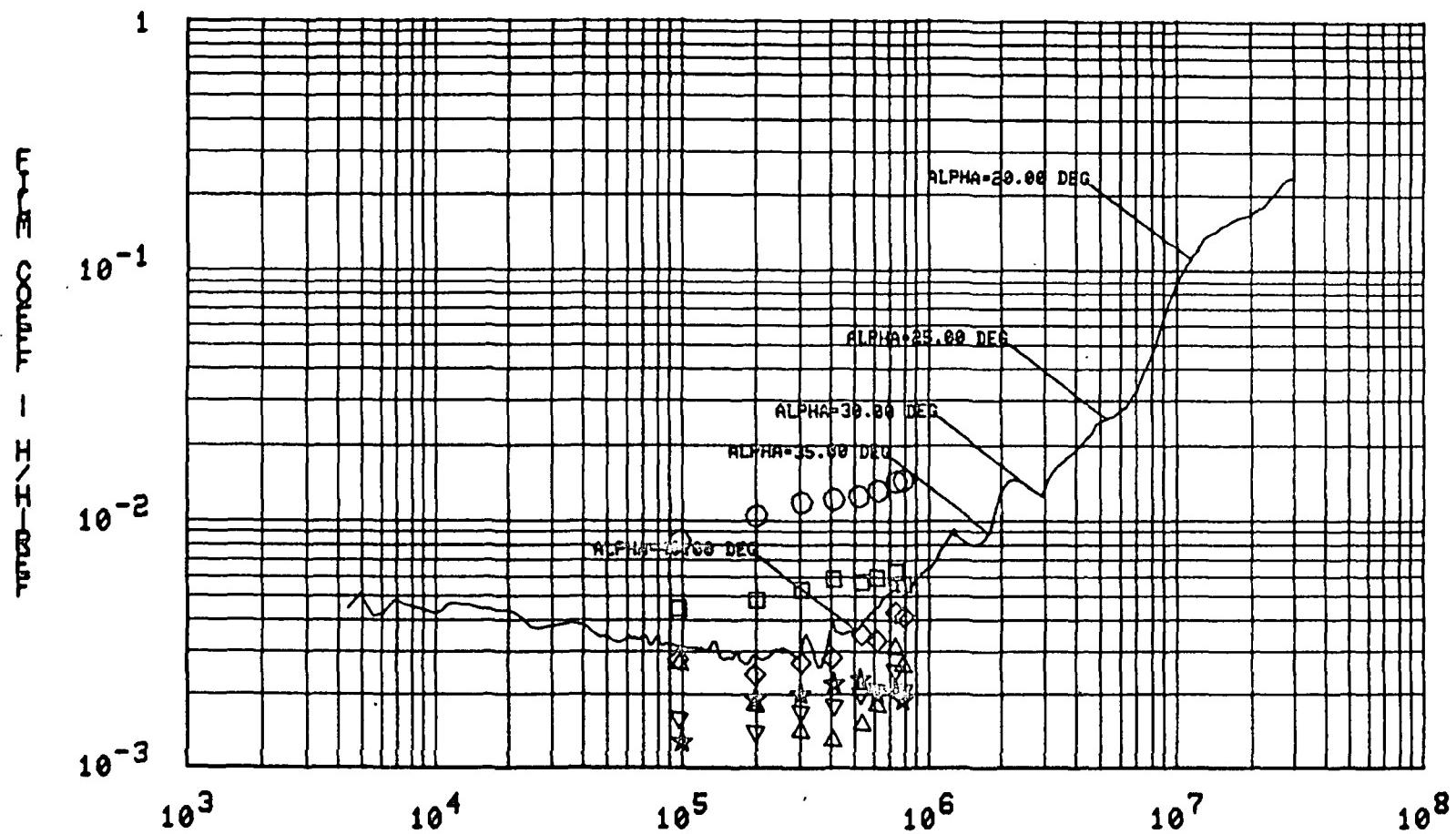
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

V07T9238A/H-REF 150-1430 SEC

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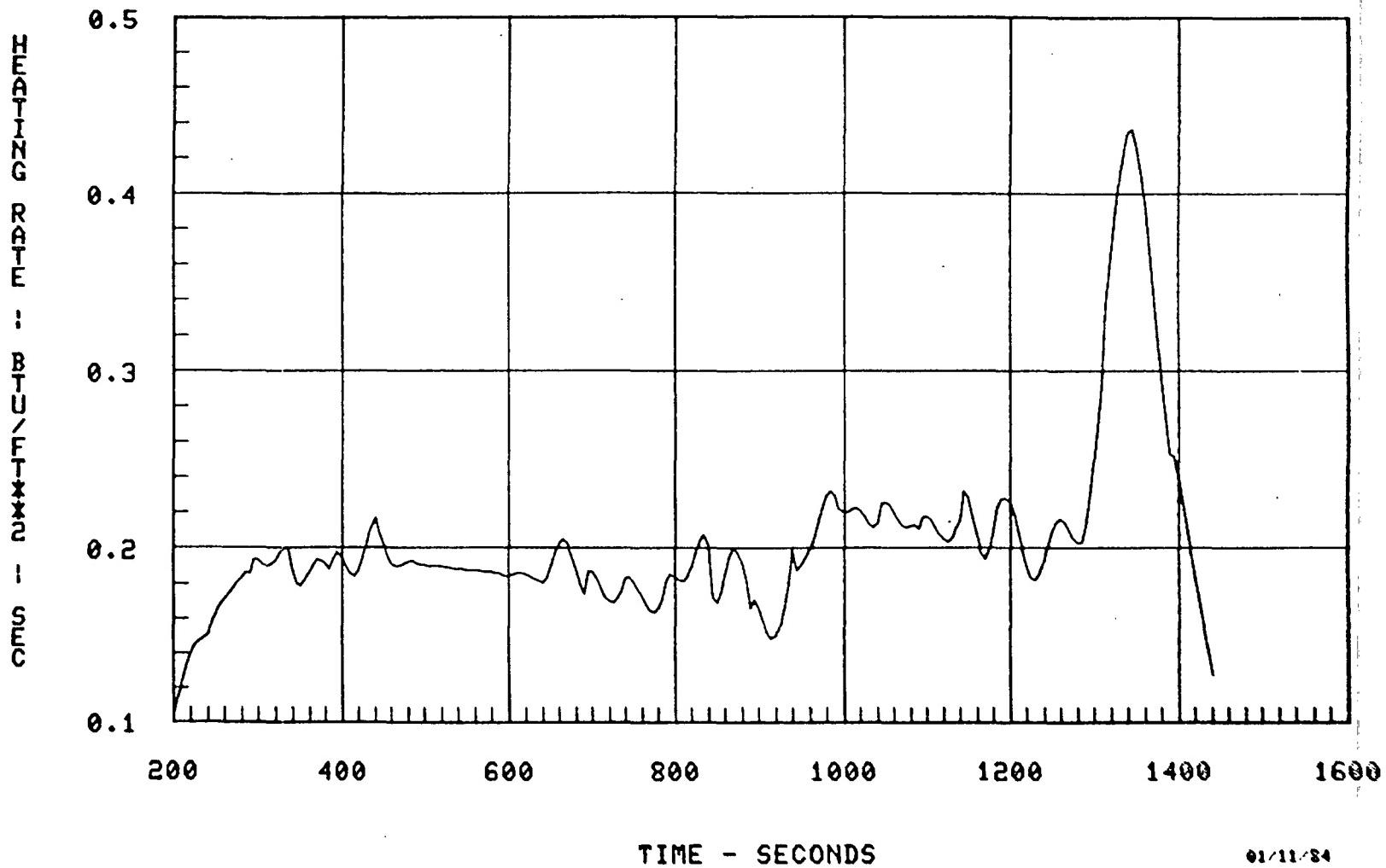
B-299

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME • 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

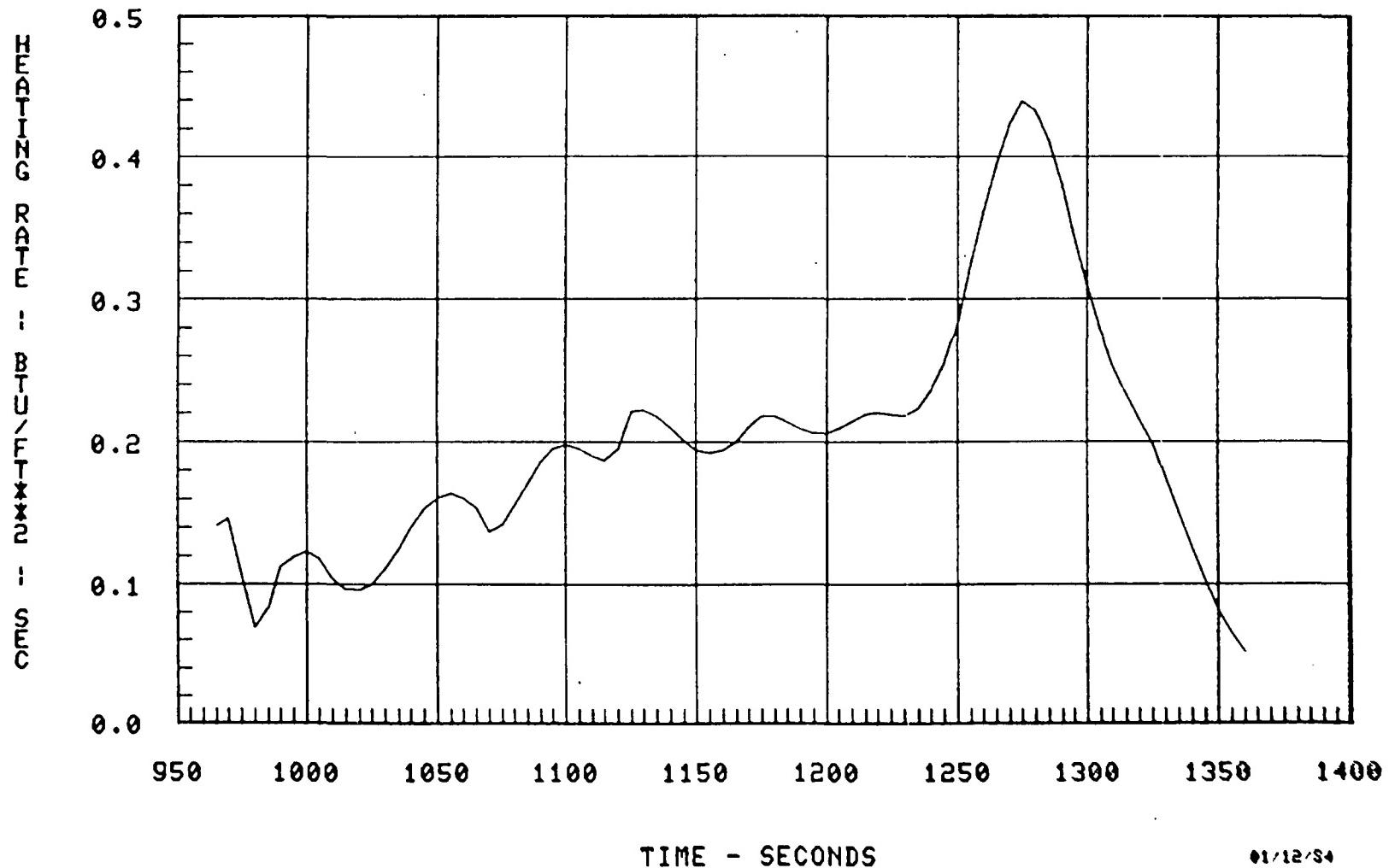
U07T9238A



STS-4 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

U07T9238A

B-301

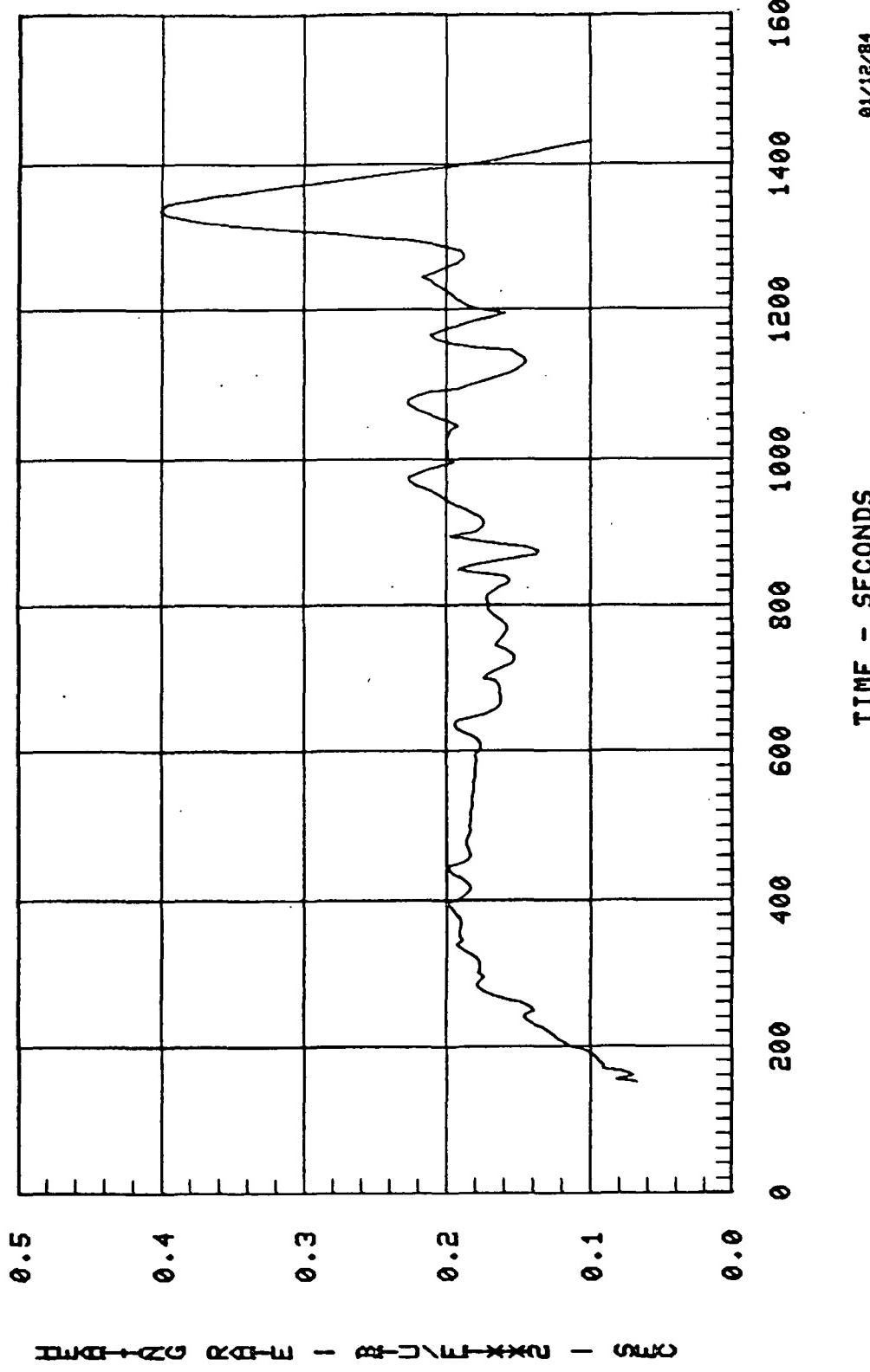


TIME - SECONDS

01/12/84

STS-5 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

U6779238A

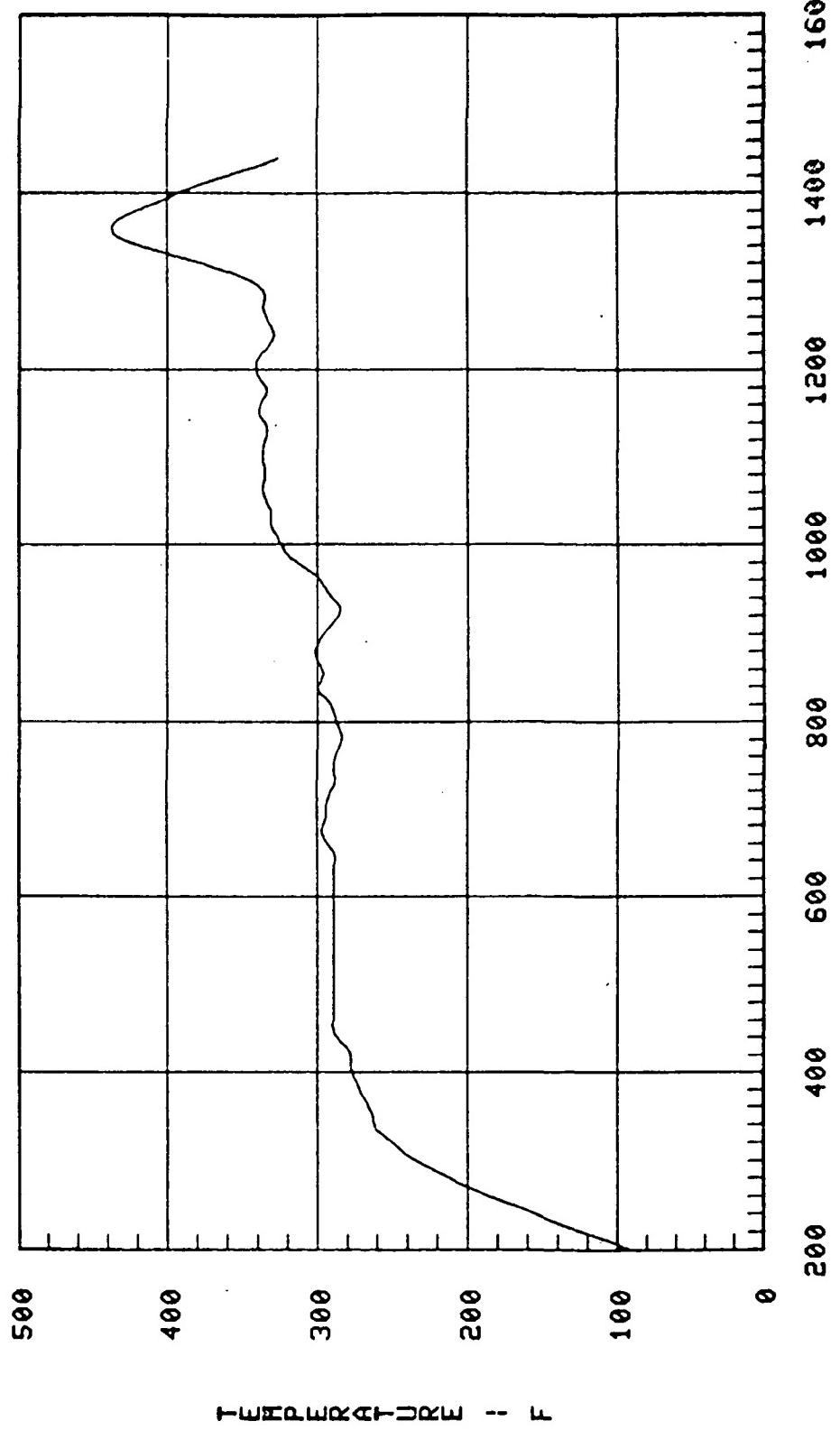


01/12/84

DATA → LOG DATA - FILE C - 5000

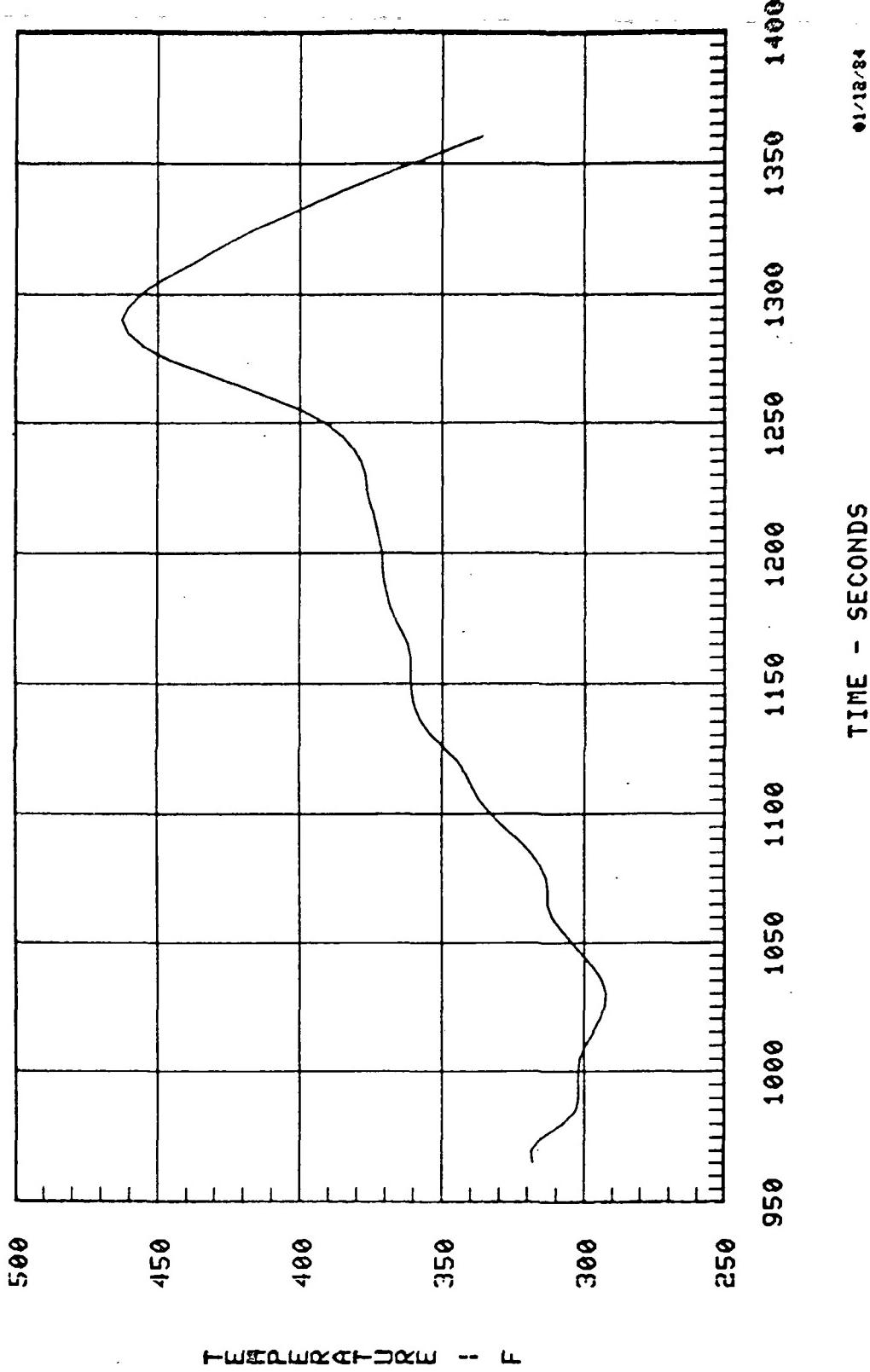
STS-3 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

U87T9238A



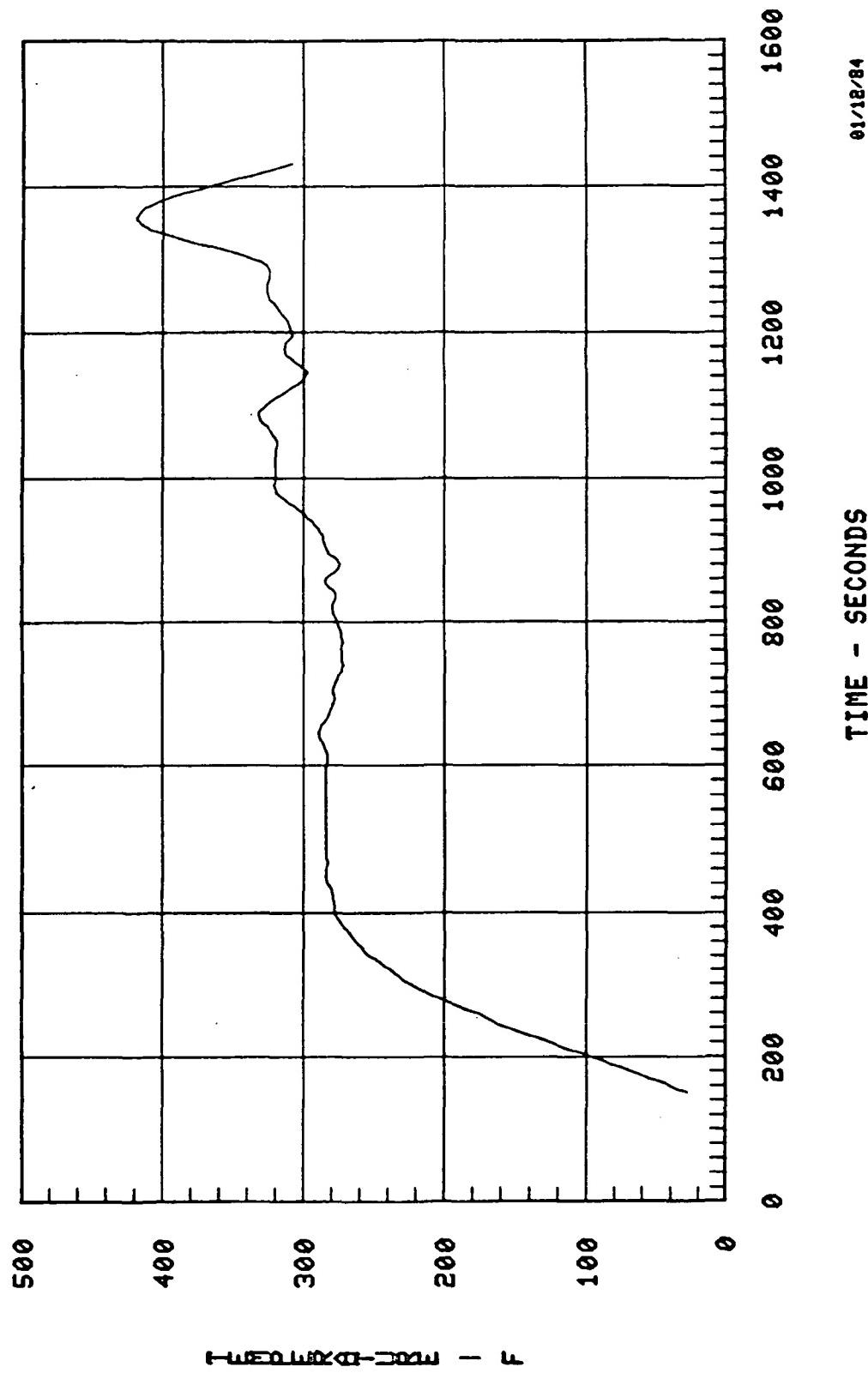
STS-4 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

U8719238H



STS-5 (107 FT LENGTH SIDE FUS X/L=0.70) Z=400

U67T9238A

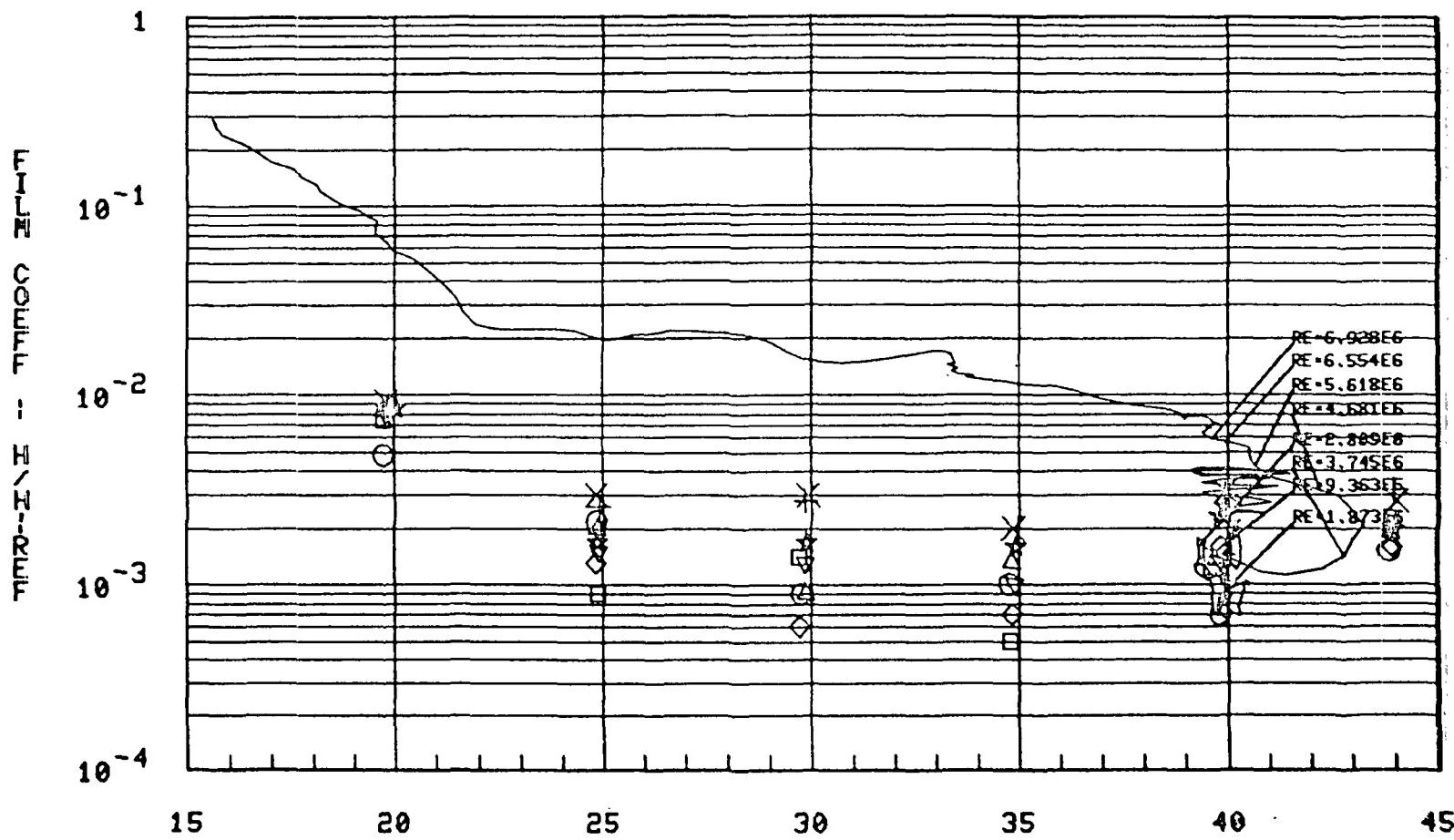


STS-3 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

O□◇△★+X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9242A/H-REF 200-1440 SEC



B-306

ANGLE-OF-ATTACK - DEG

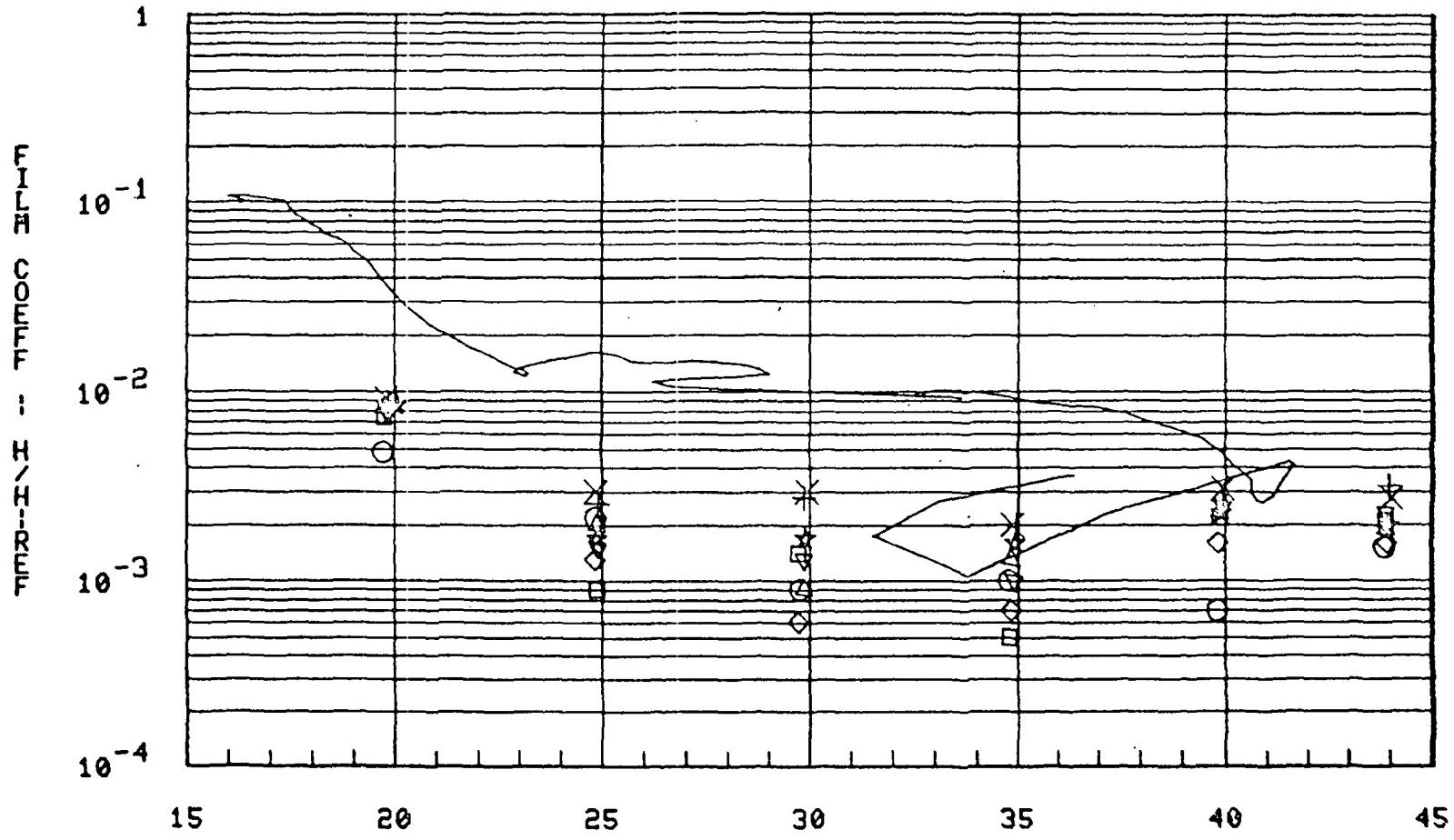
01/11/84
 BASE TIME = 07745634.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U87T9242A/H-REF 965-1360 SEC

O ◇ △ □ ★ + X



B-307

01/12/84
ANGLE-OF-ATTACK - DEG

BASE TIME = 16040423.040 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

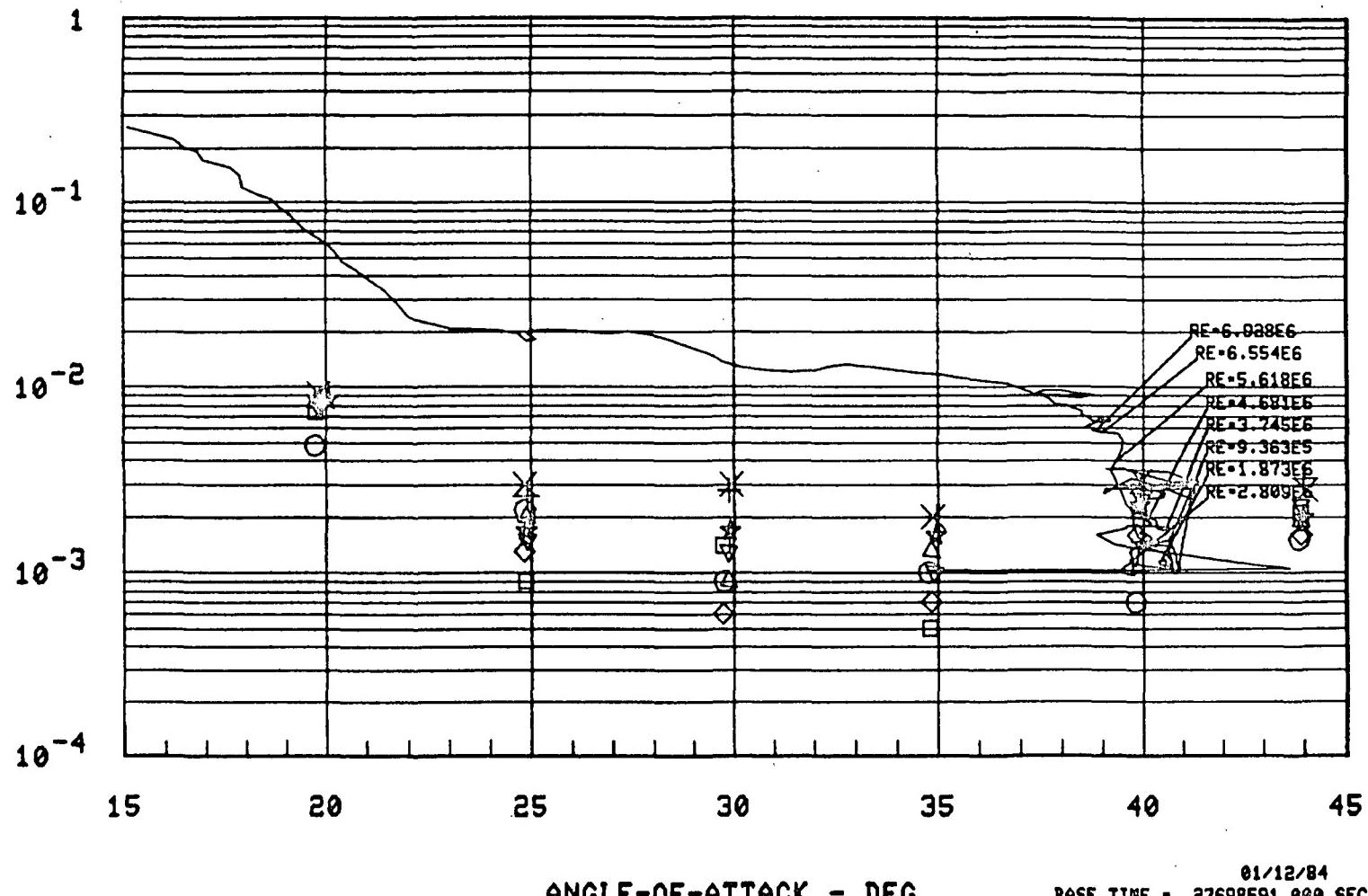
OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9242A/H-REF 150-1430 SEC

○□△◇★+X

LINE DRAW - H\I-CASE

B-308

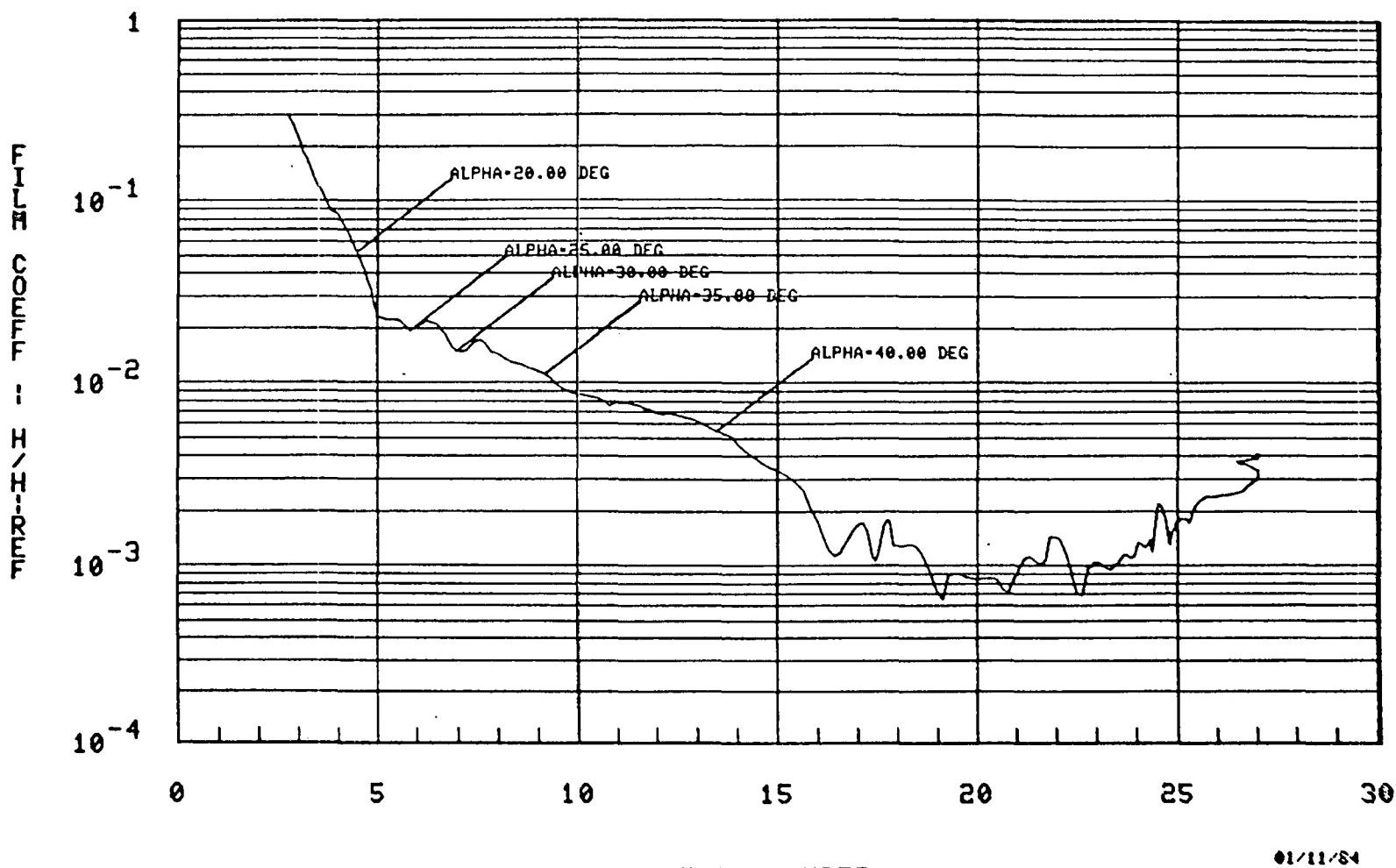


ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME = 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

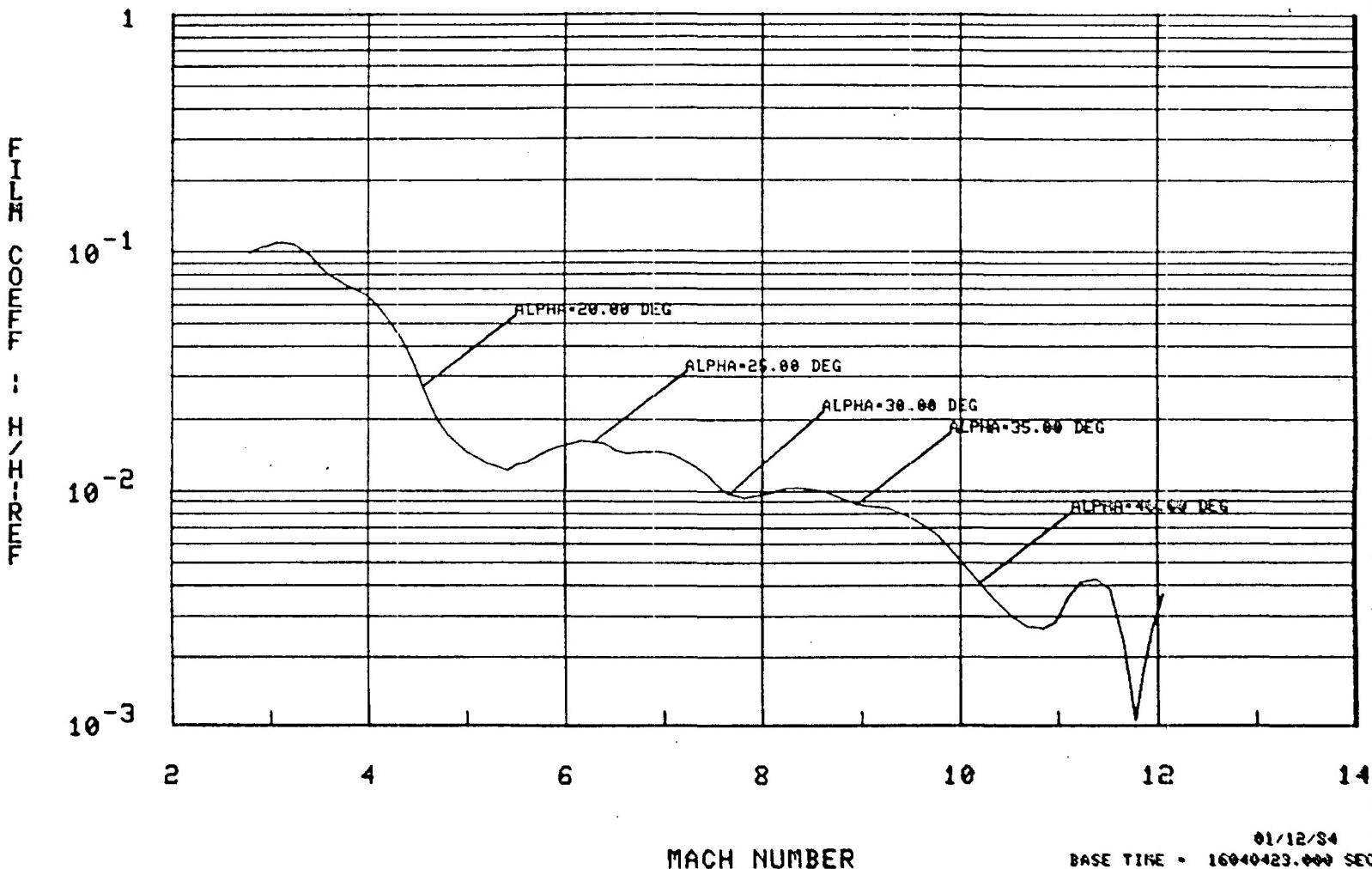
U07T9242A/H-REF 200-1440 SEC



01/11/84
BASE TIME • 07745684.000 SEC.

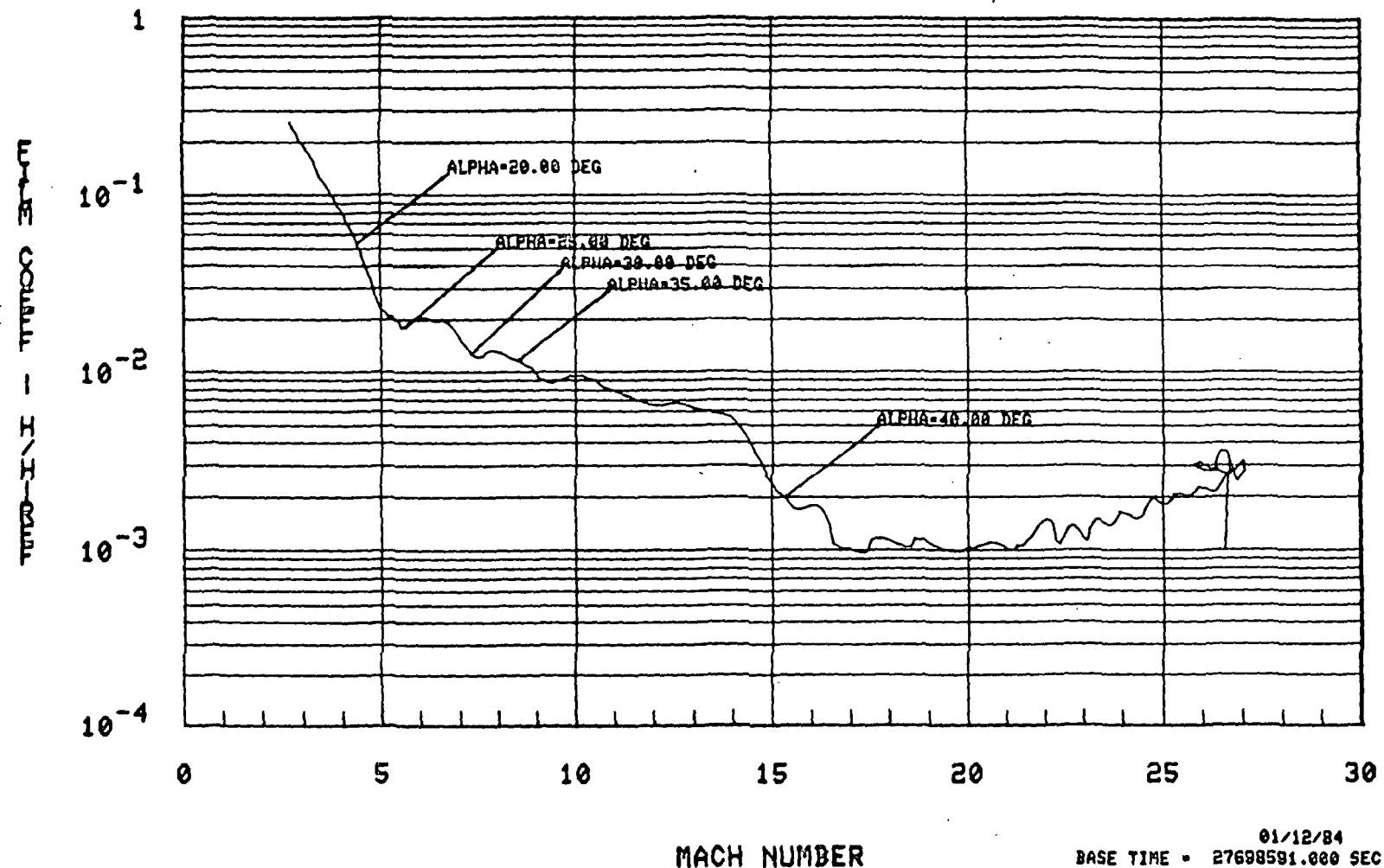
STS-4 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

U07T9242A/H-REF 965-1360 SEC



STS-5 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

V07T9242A/H-REF 150-1430 SEC



01/12/84

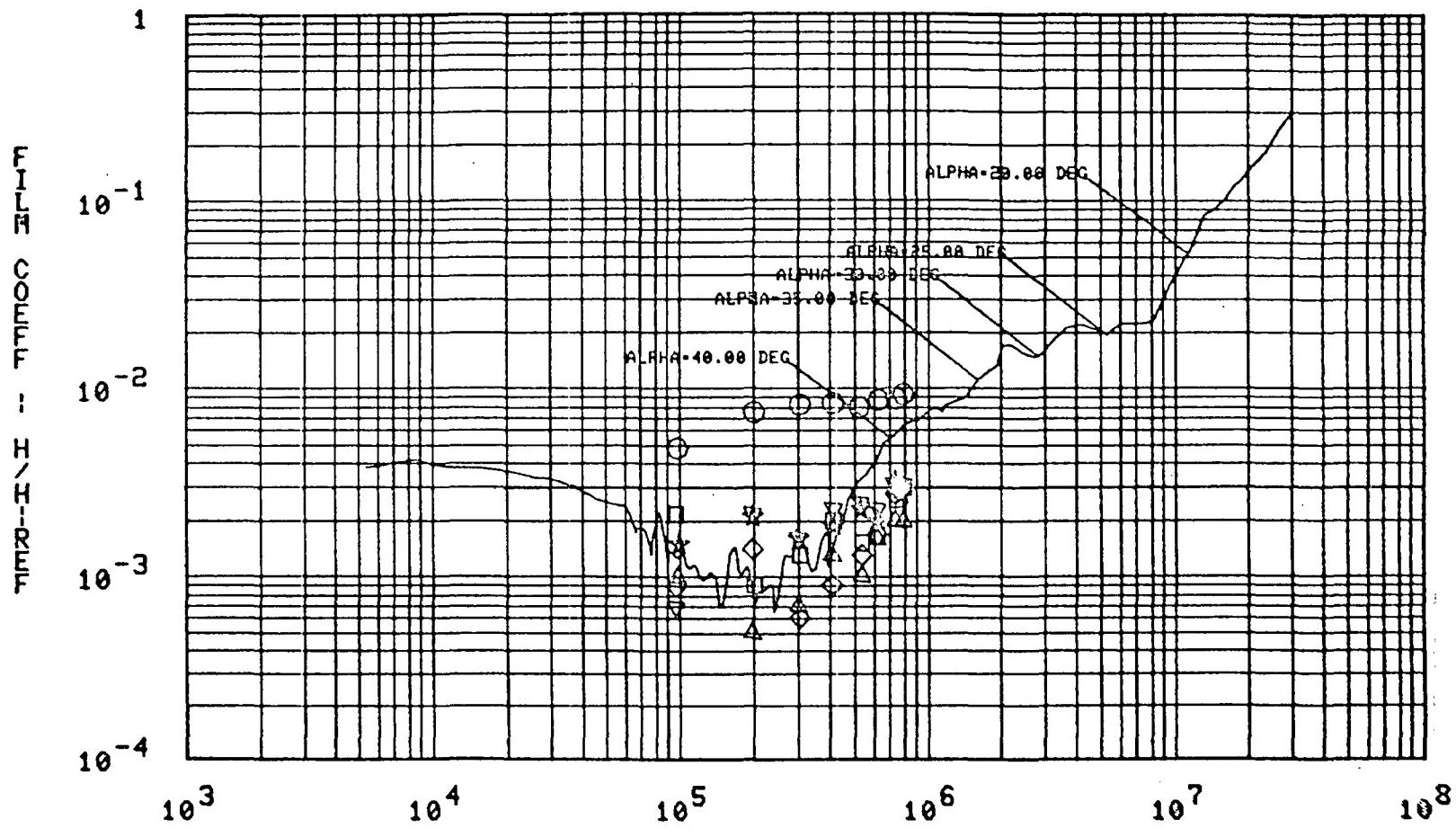
BASE TIME = 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

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CH74 ALPHA = 20 DEGREES
 CH74 ALPHA = 25 DEGREES
 CH74 ALPHA = 30 DEGREES
 CH74 ALPHA = 35 DEGREES
 CH74 ALPHA = 40 DEGREES
 CH74 ALPHA = 44 DEGREES

U07T9242A/H-REF 200-1440 SEC



B-312

REYNOLDS NUMBER (NS)

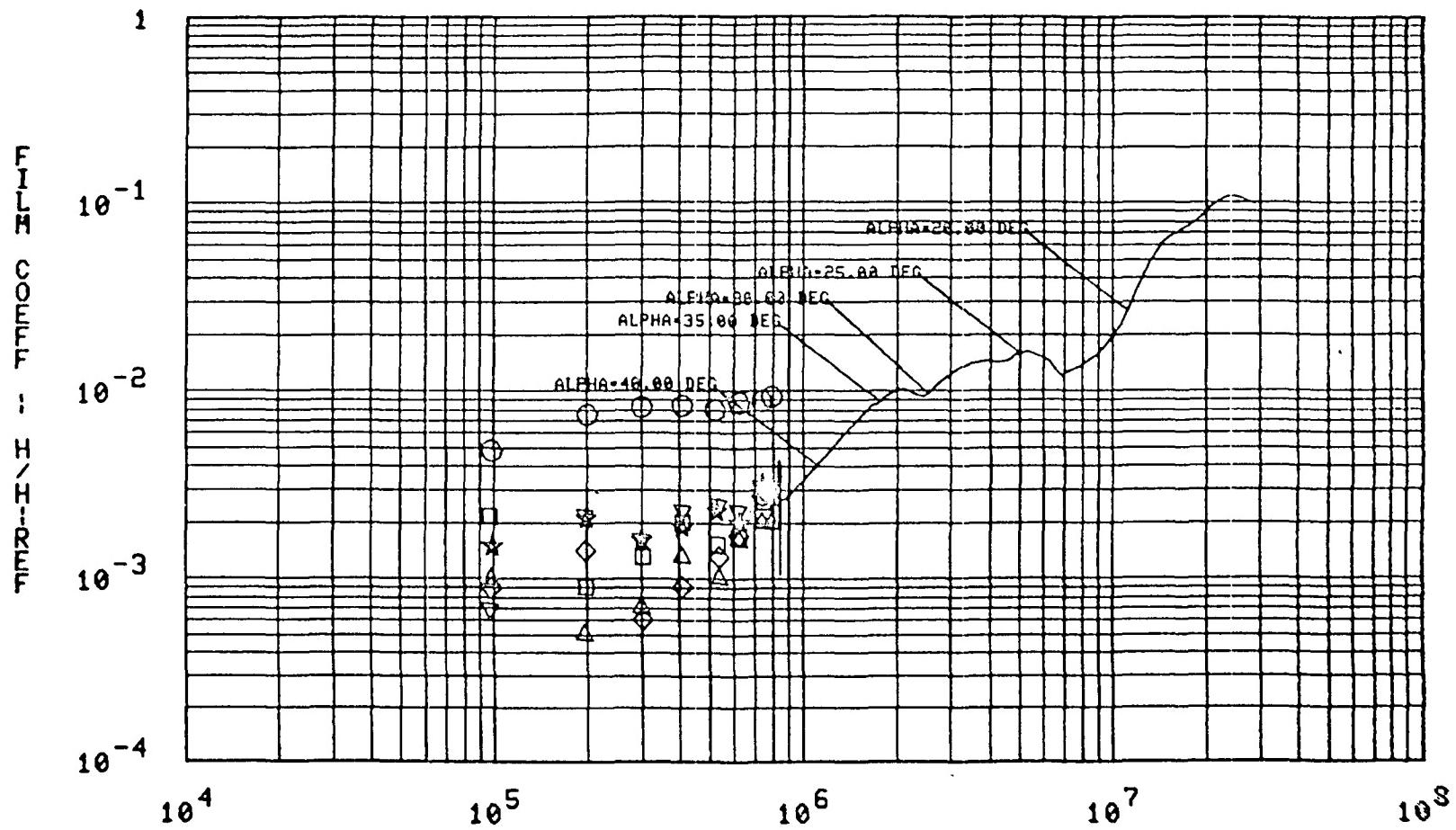
01/11/84
 BASE TIME = 07745684.040 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07TSI242A/H-REF 965-1360 SEC



B-313

REYNOLDS NUMBER (NS)

01/12/84

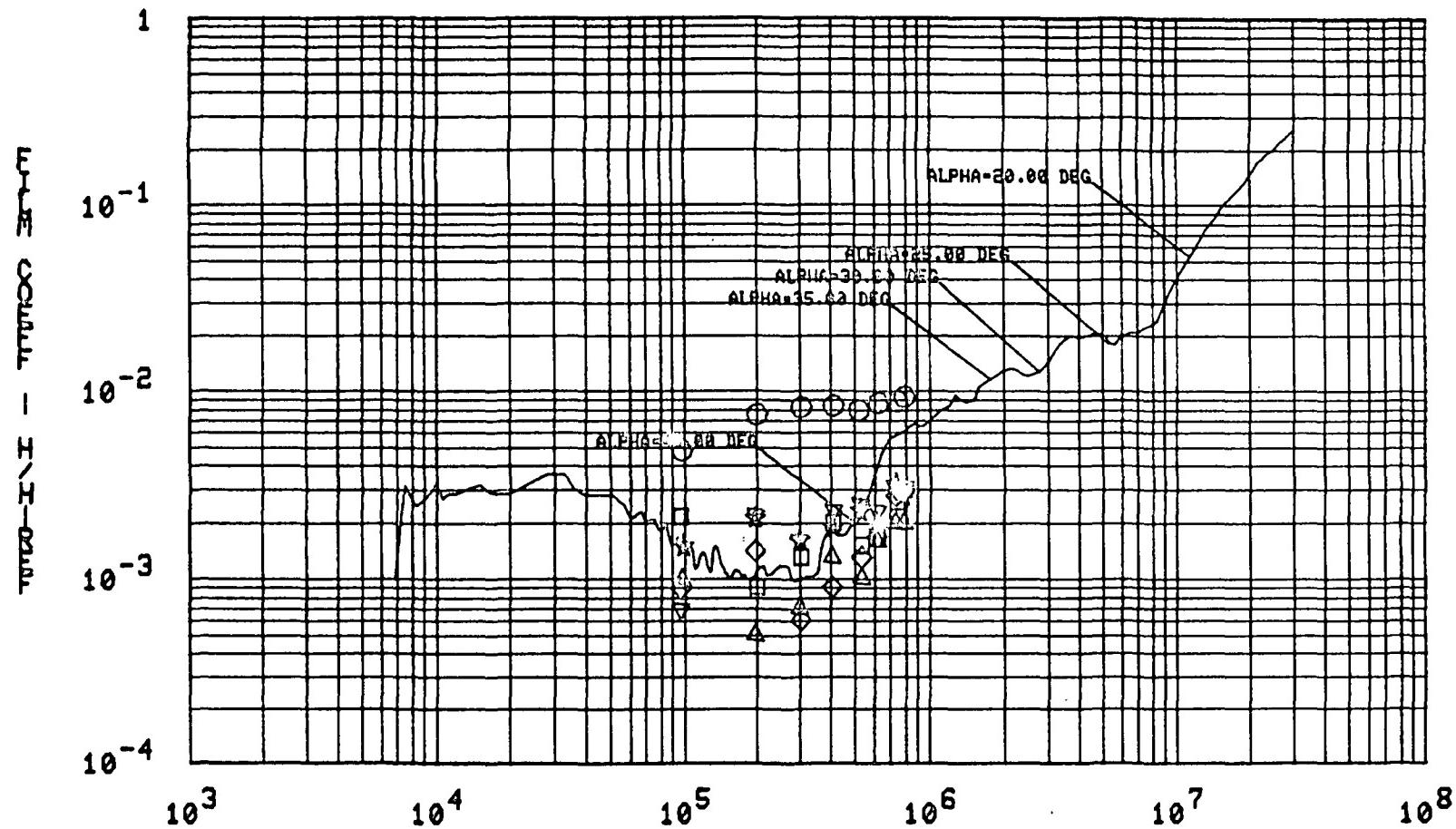
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9242A/H-REF 150-1430 SEC

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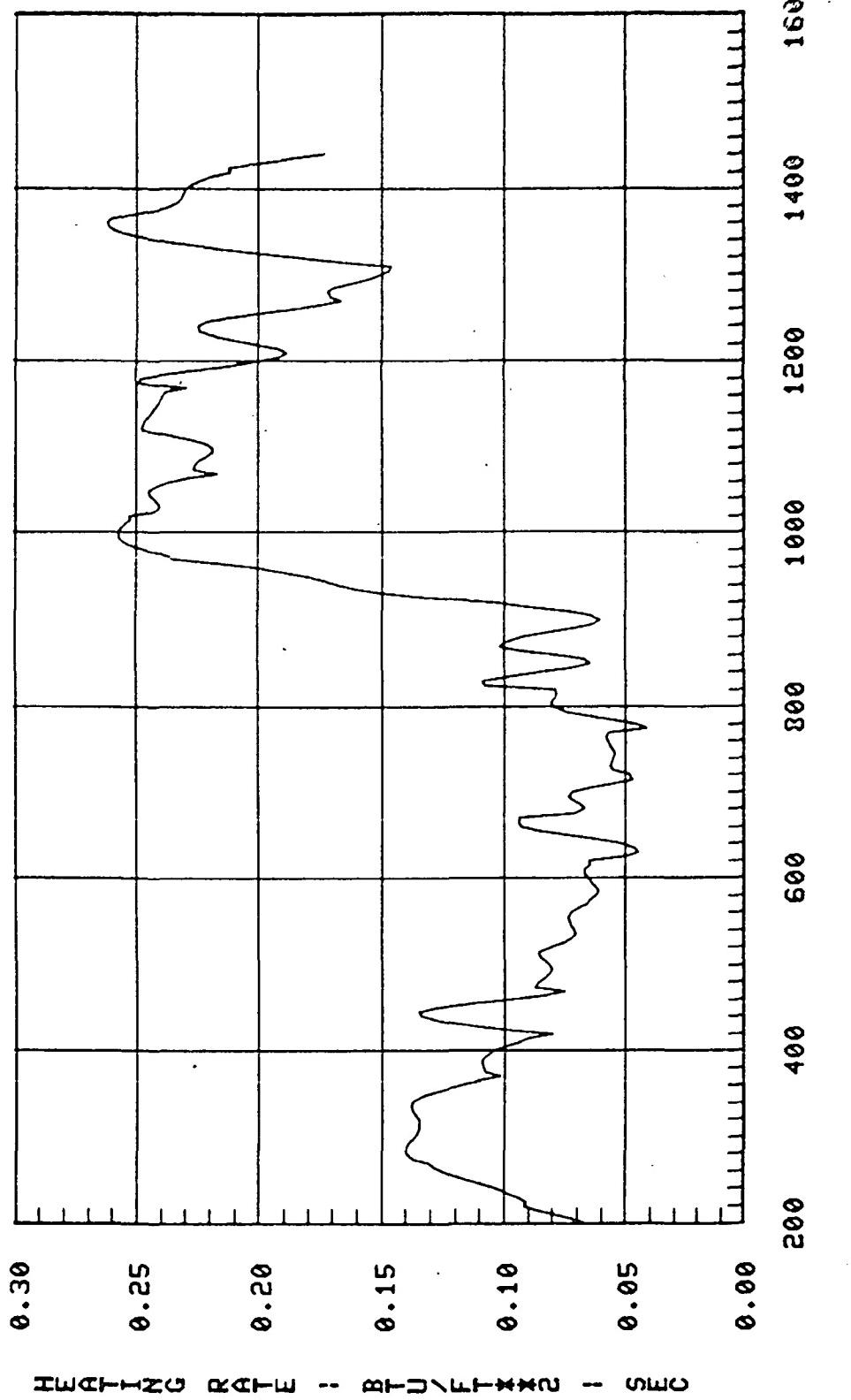
B-314

REYNOLDS NUMBER (NS)

01/12/84
BASE TIME • 27698591.600 SEC.

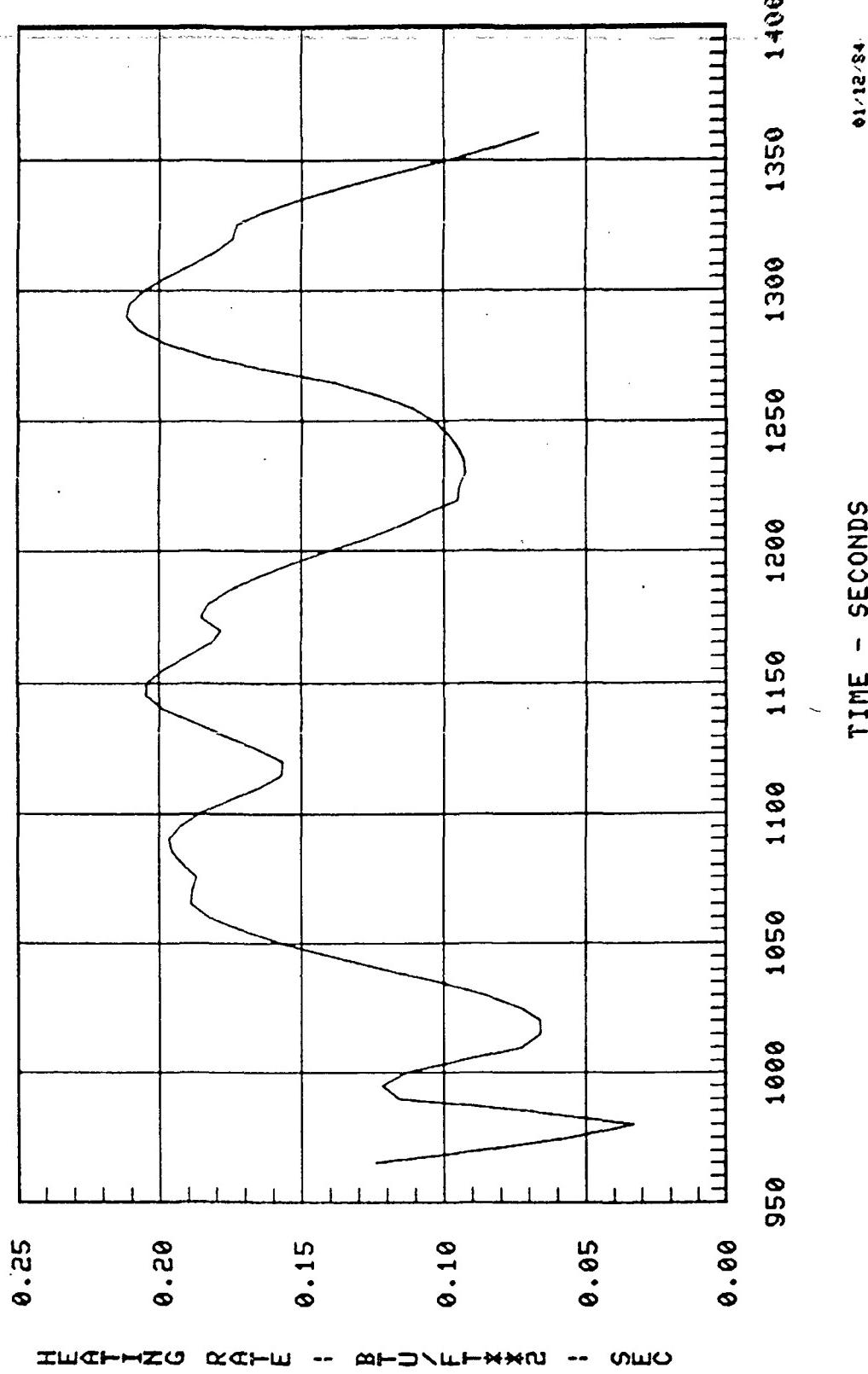
STS-3 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

U07T9242A



STS-4 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

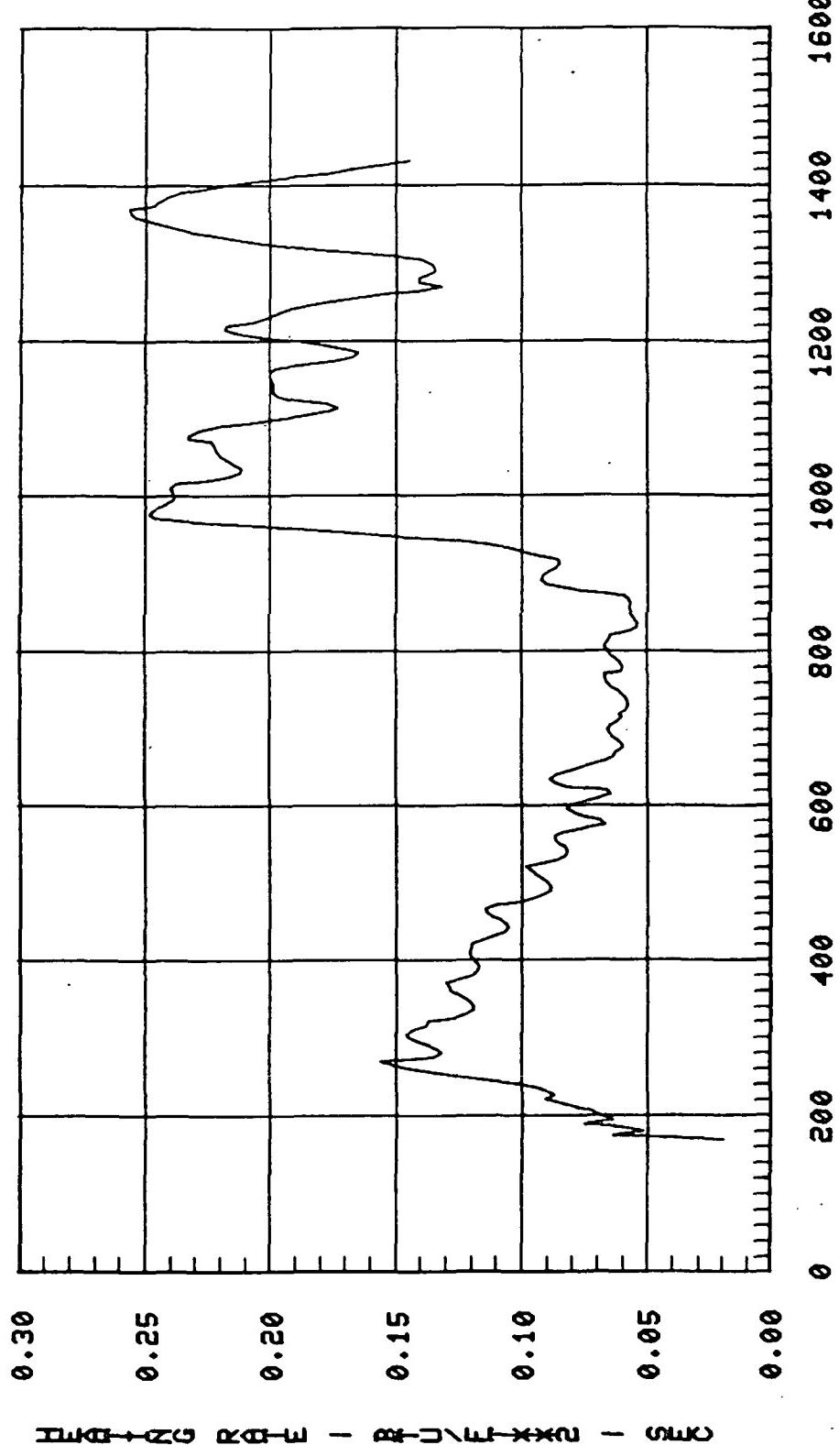
U87T9242A



61/12/S4

STS-5 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

U87T9242A

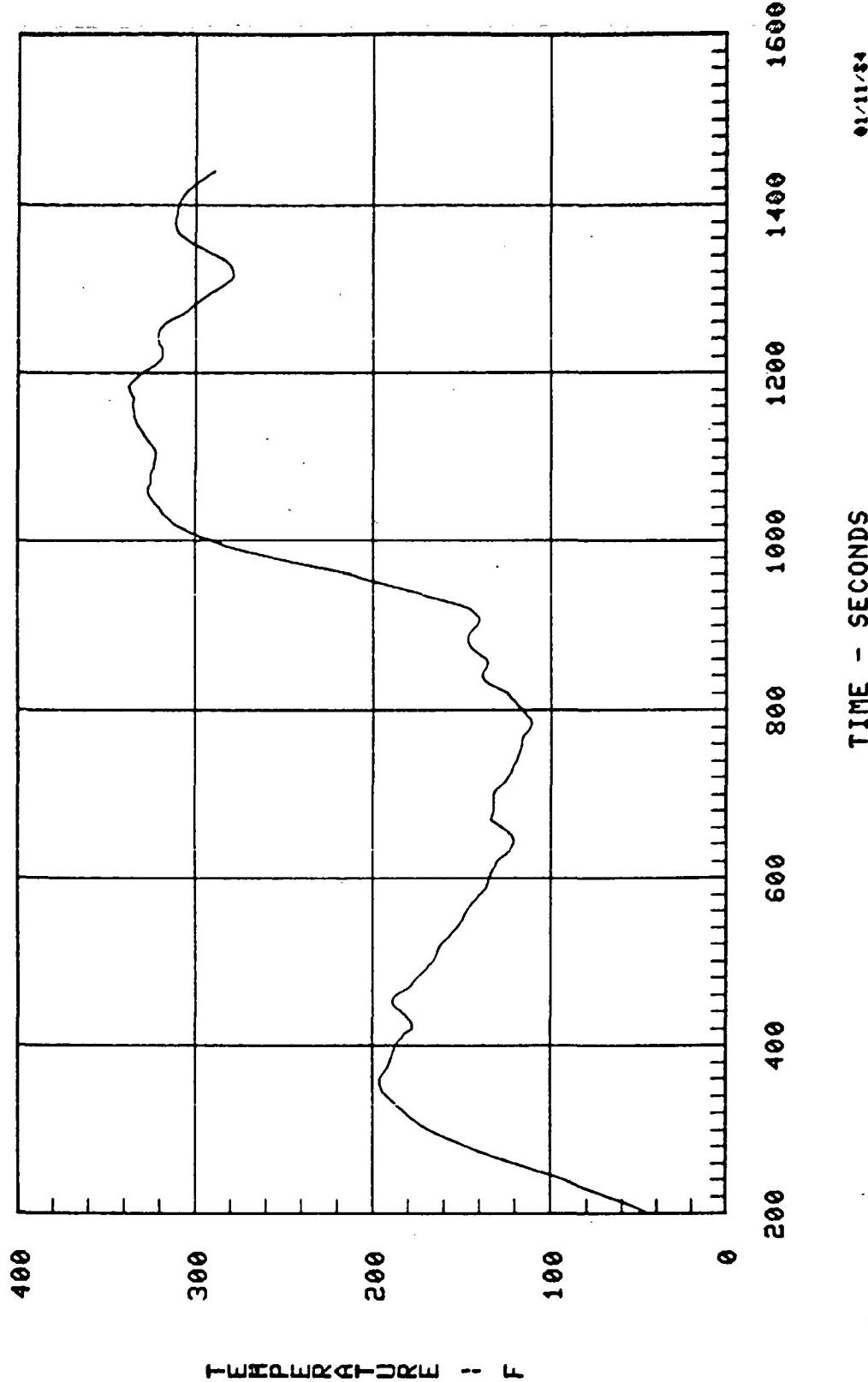


TIME - SECONDS

01/12/84

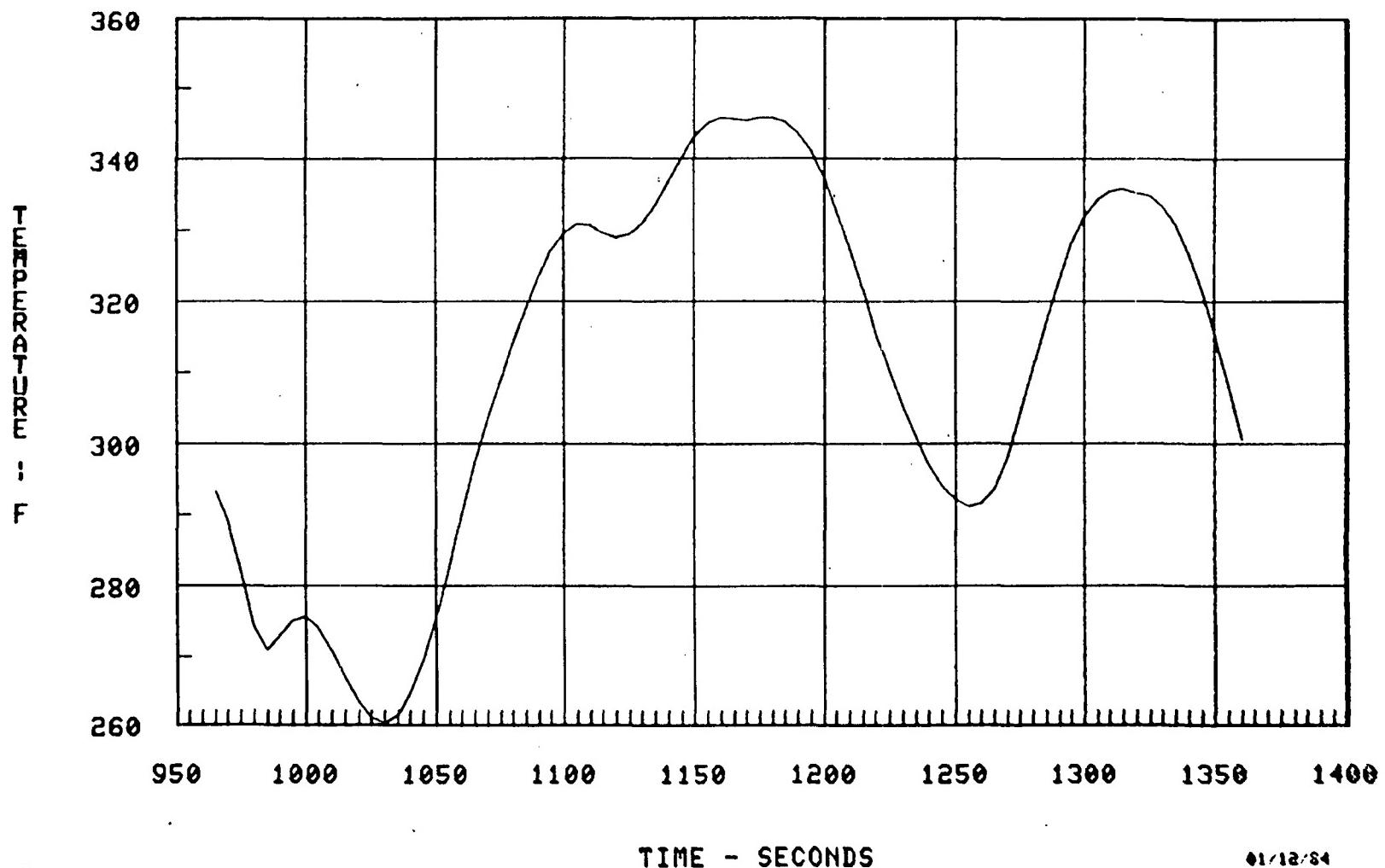
STS-3 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

40719242A



STS-4 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

U07T9242A

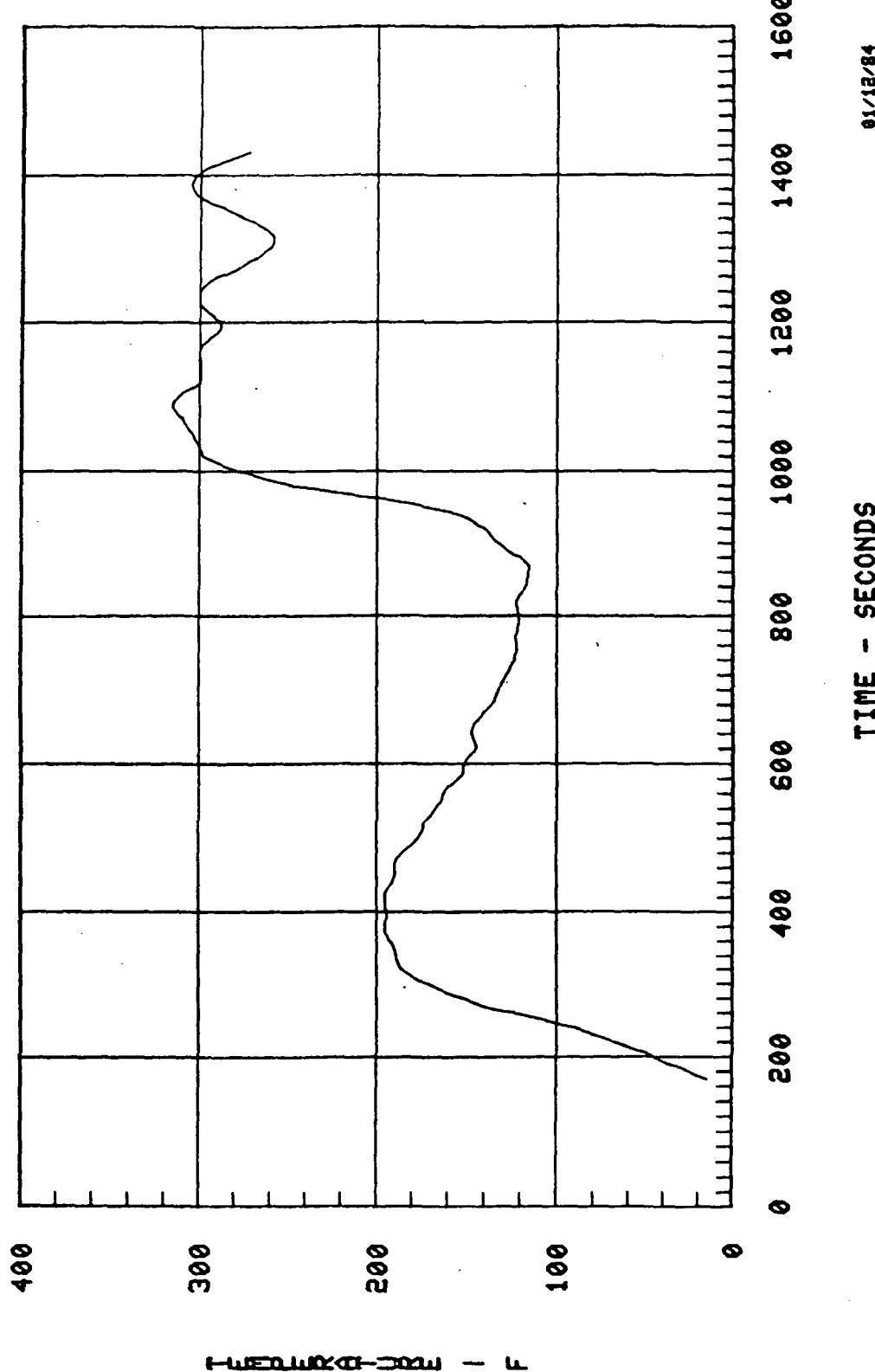


B-319

01/12/84

STS-5 (107 FT LENGTH SIDE FUS X/L=0.80) Z=400

U07T9242A

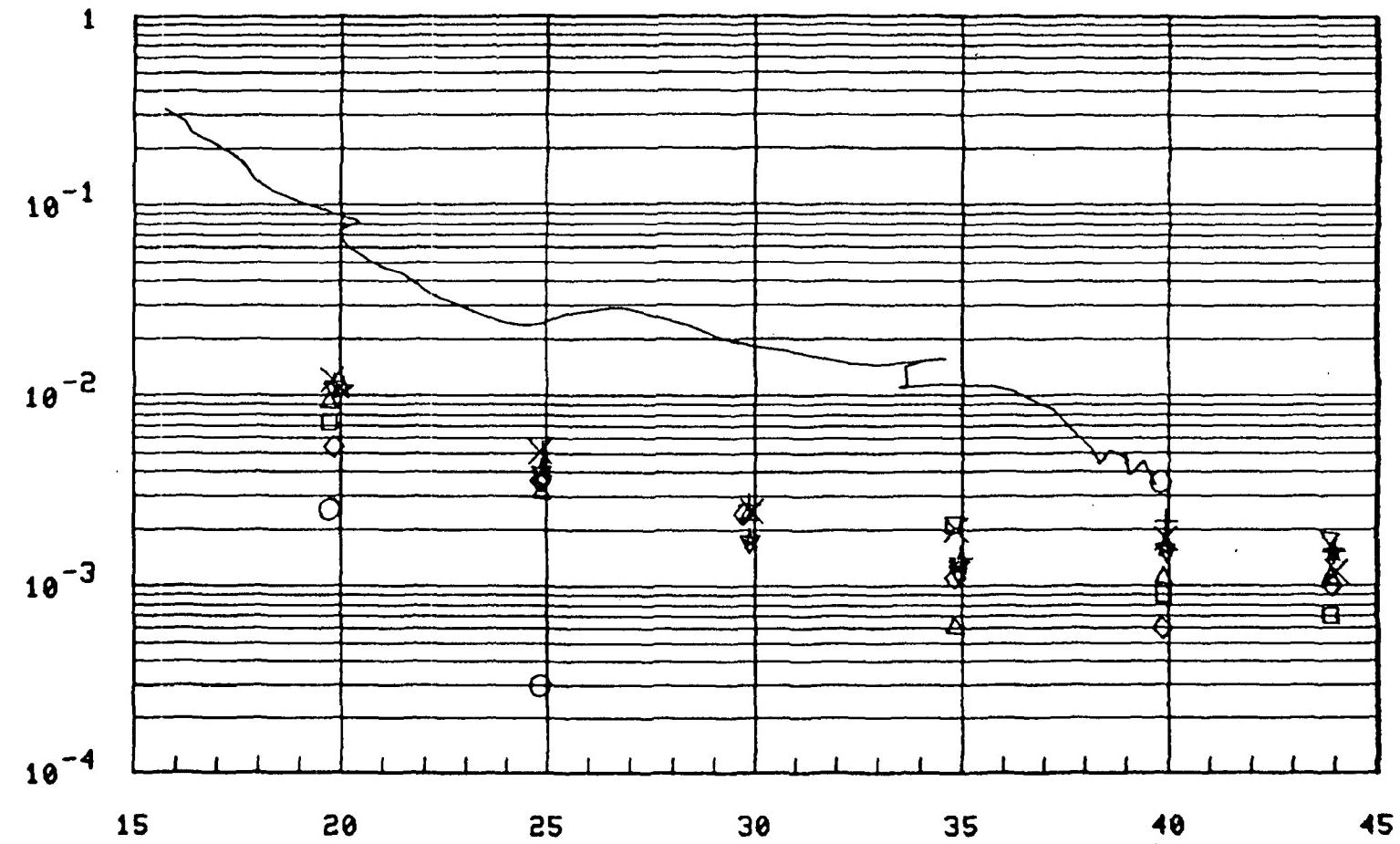


STS-1 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U09T9736A/H-REF 1065-1500 SEC

○□◇△★+X



B-321

ANGLE-OF-ATTACK - DEG

01/11/84

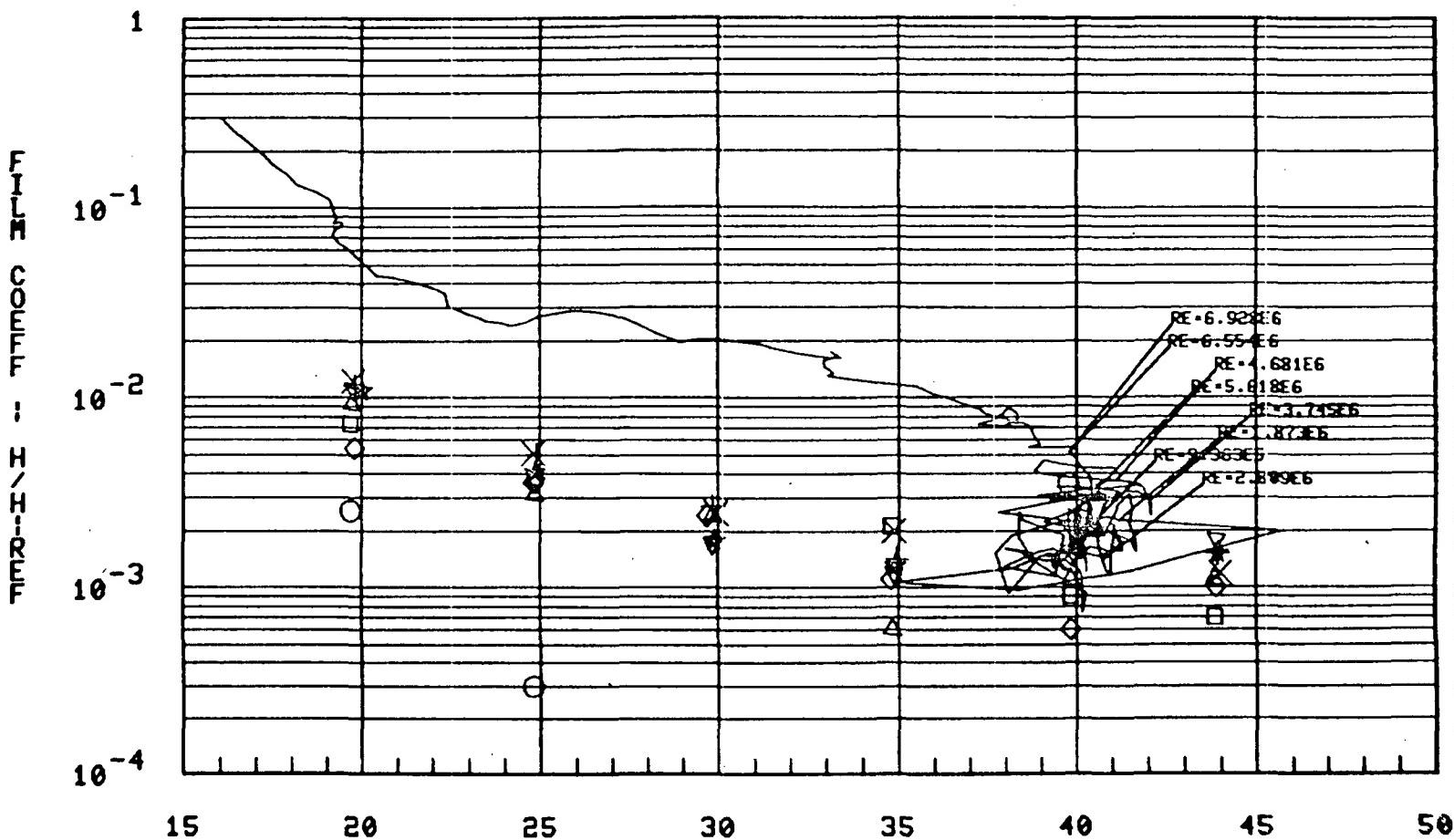
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U09T9736A/H-REF 200-1530 SEC

O ◇ ▲ △ ★ + X



B-322

ANGLE-OF-ATTACK - DEG

01/11/84

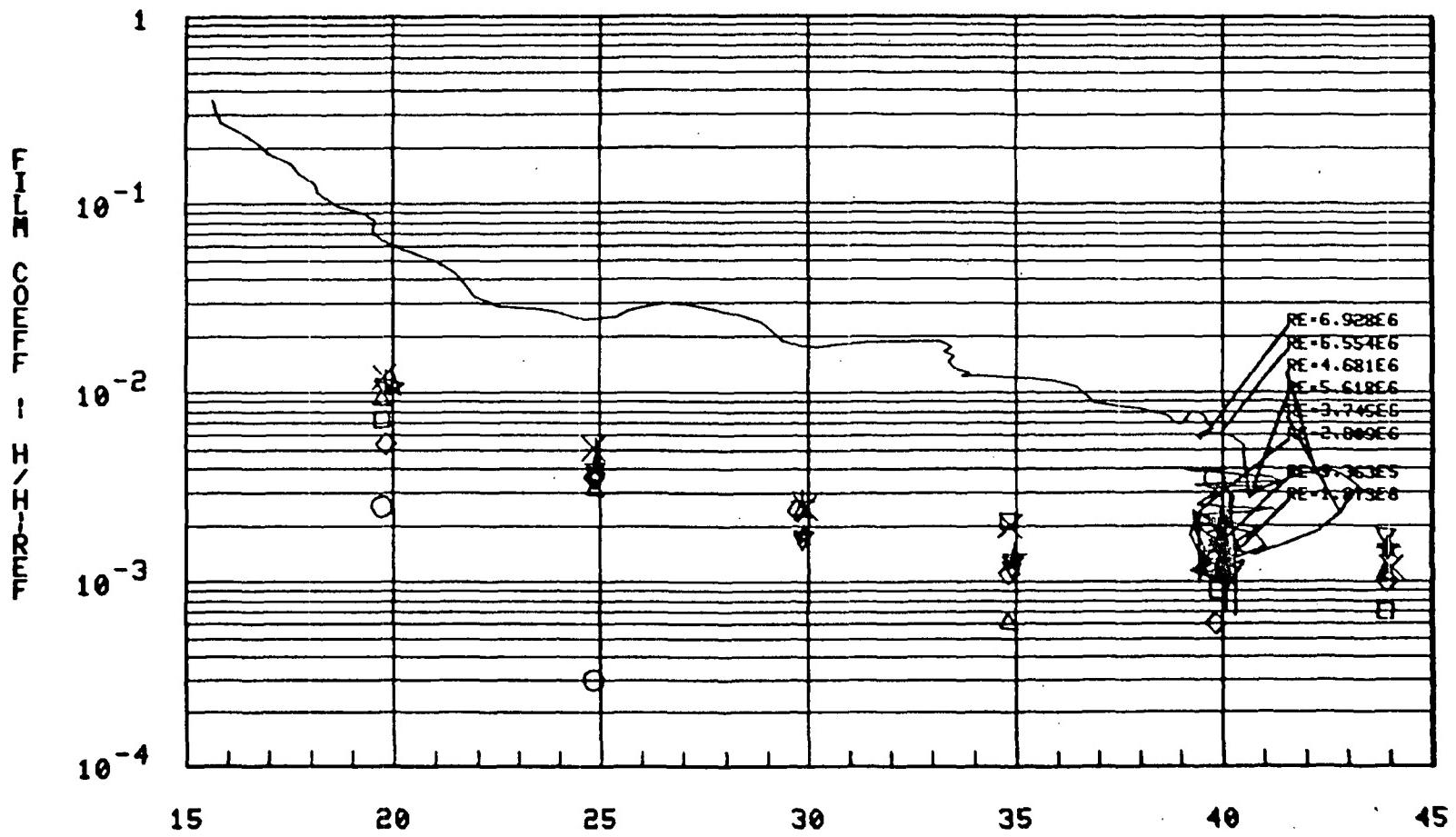
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U09T9736A/H-REF 200-1448 SEC

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B-323

ANGLE-OF-ATTACK - DEG

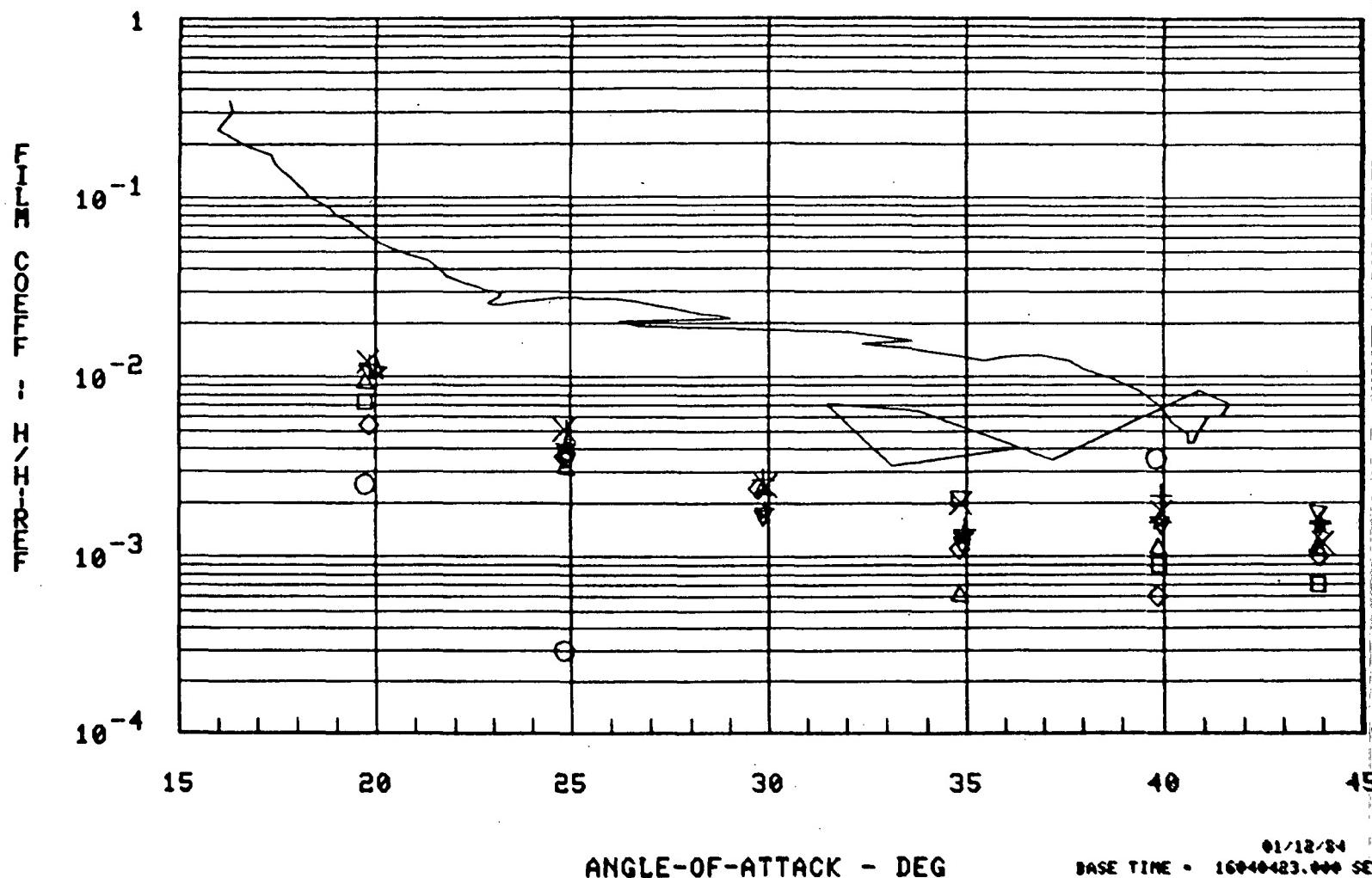
01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

○□◇◆△★+X

OH74 0.0175 SCALE RE • 0.5 E06
 OH74 0.0175 SCALE RE • 1.0 E06
 OH74 0.0175 SCALE RE • 1.5 E06
 OH74 0.0175 SCALE RE • 2.0 E06
 OH74 0.0175 SCALE RE • 2.5 E06
 OH74 0.0175 SCALE RE • 3.0 E06
 OH74 0.0175 SCALE RE • 3.5 E06
 OH74 0.0175 SCALE RE • 3.7 E06

U09T9736A/H-REF 965-1360 SEC



B-324

ANGLE-OF-ATTACK - DEG

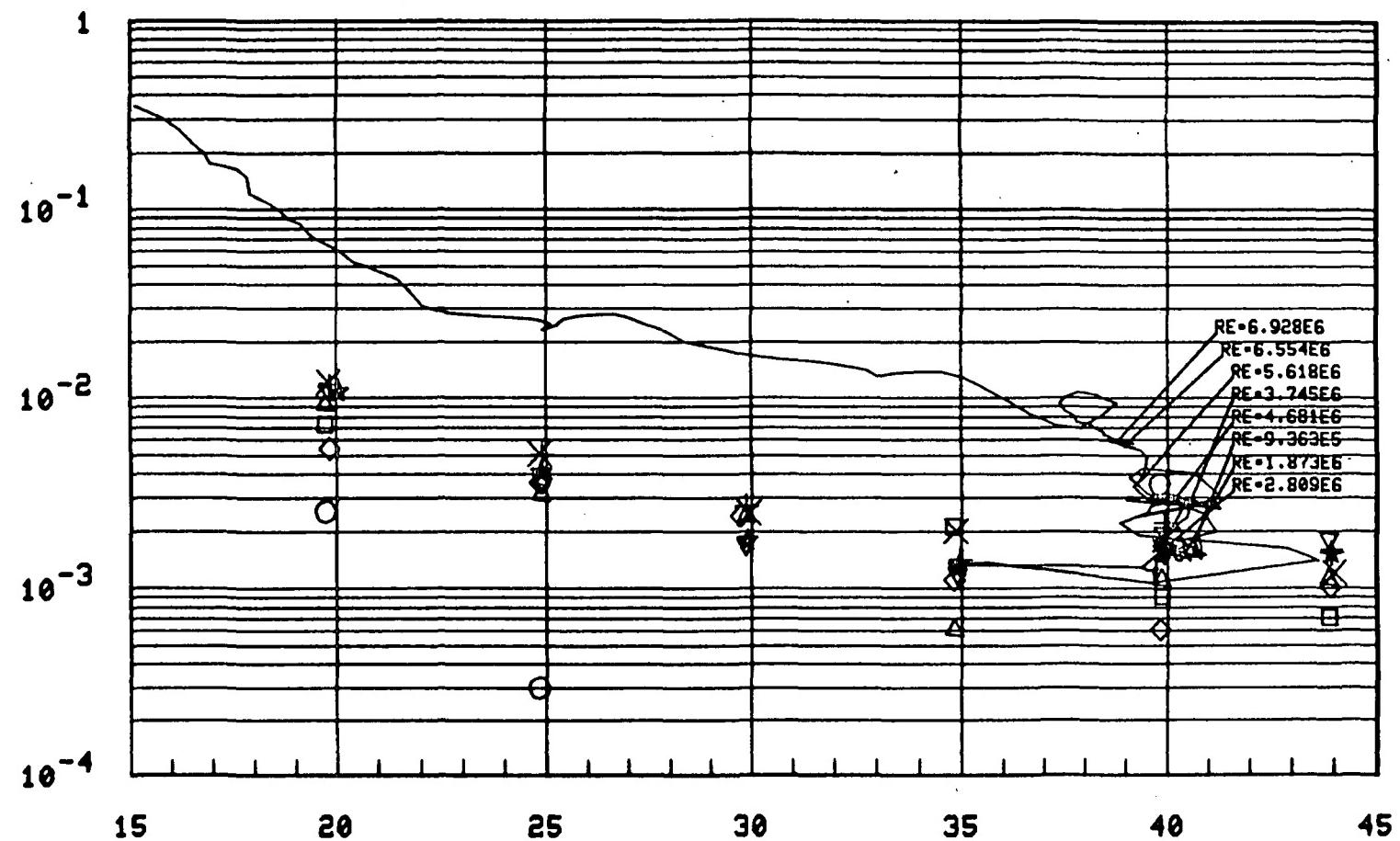
01/12/84
BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U09T9736A/H-REF 150-1430 SEC

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B-325

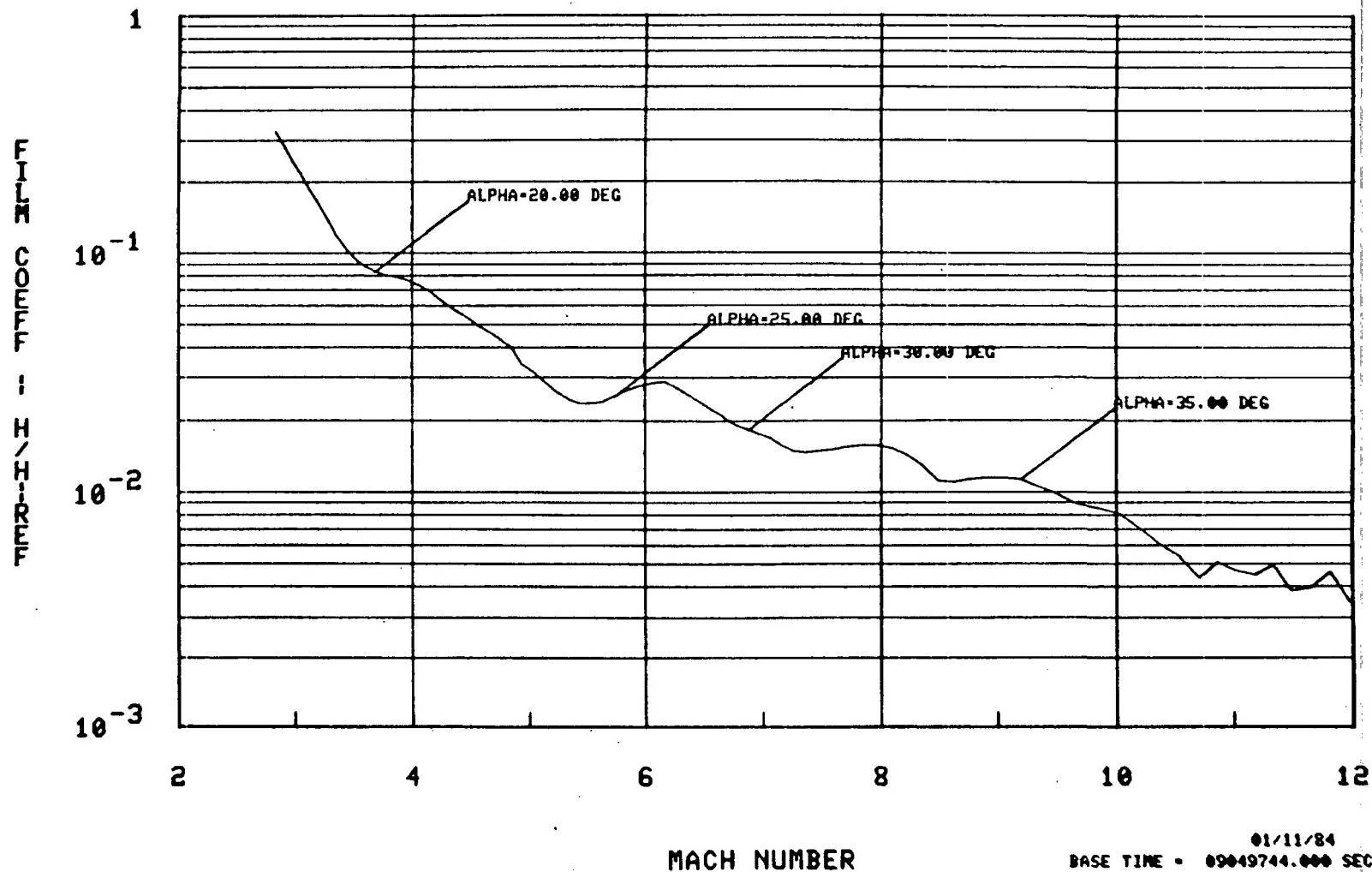
ANGLE-OF-ATTACK - DEG

01/12/84

BASE TIME = 27688591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

U09T9736A/H-REF 1065-1500 SEC



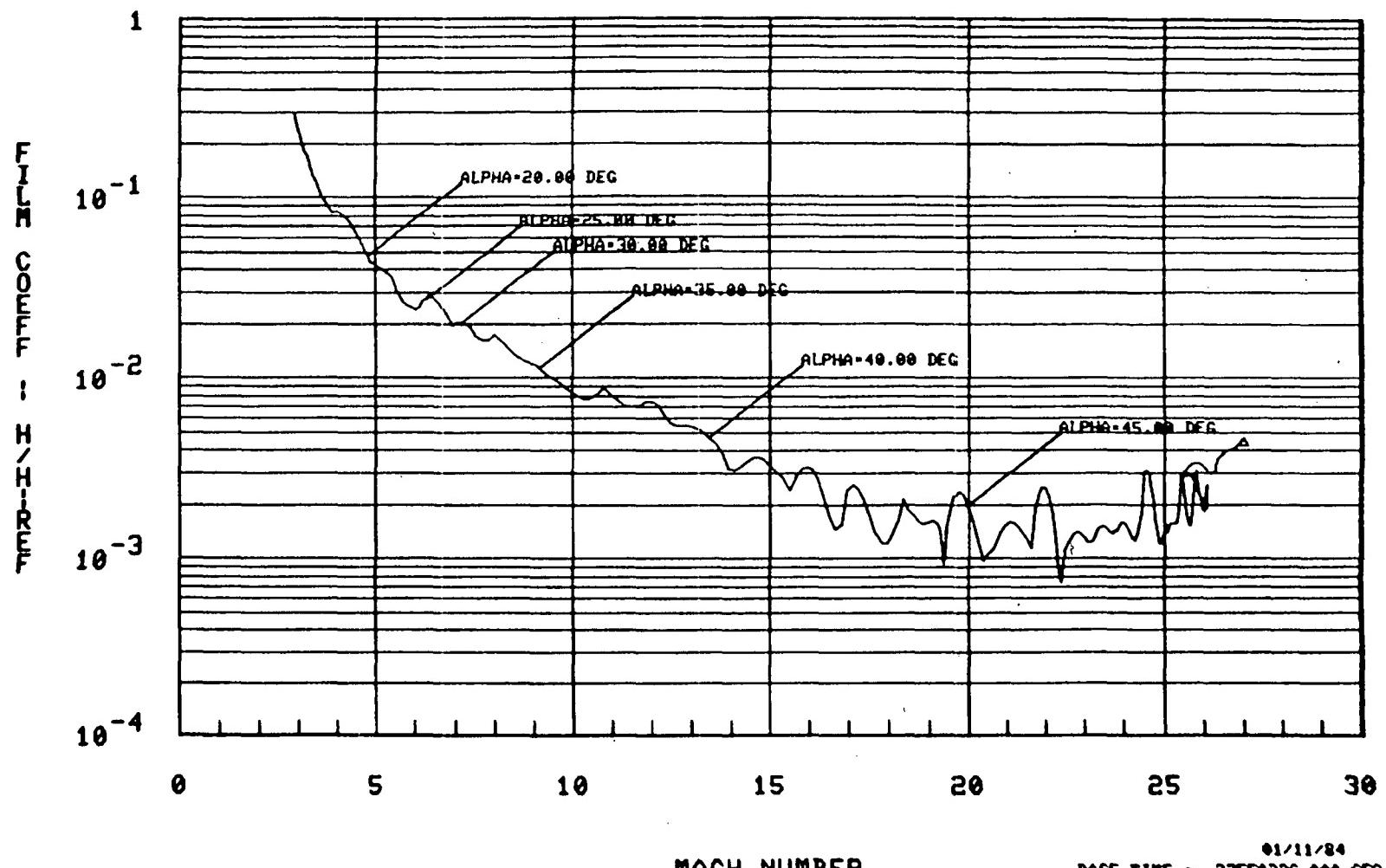
B-326

MACH NUMBER

01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

U09T9736A/H-REF 200-1530 SEC



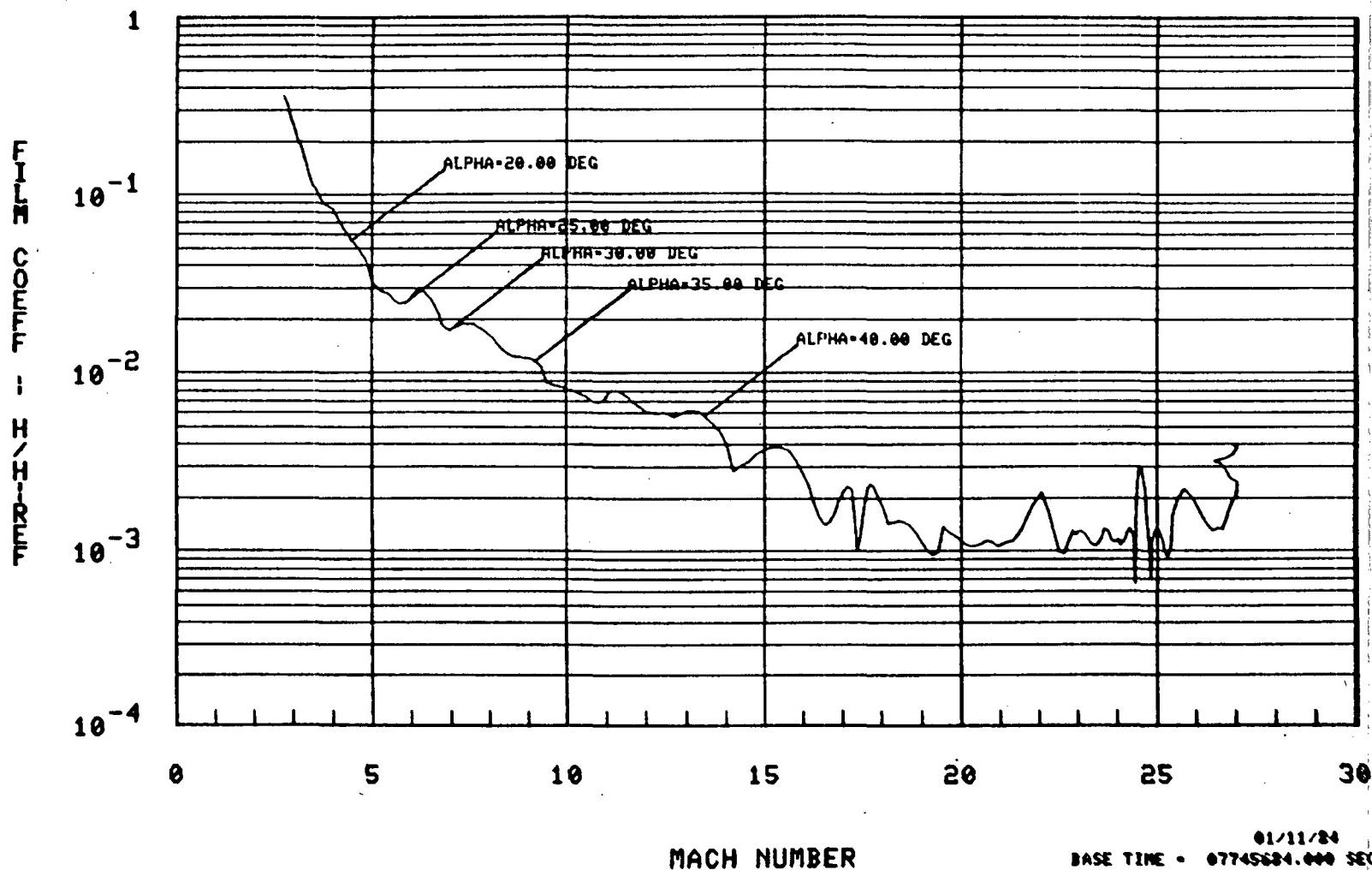
B-327

MACH NUMBER

01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

U09T9736A/H-REF 200-1440 SEC



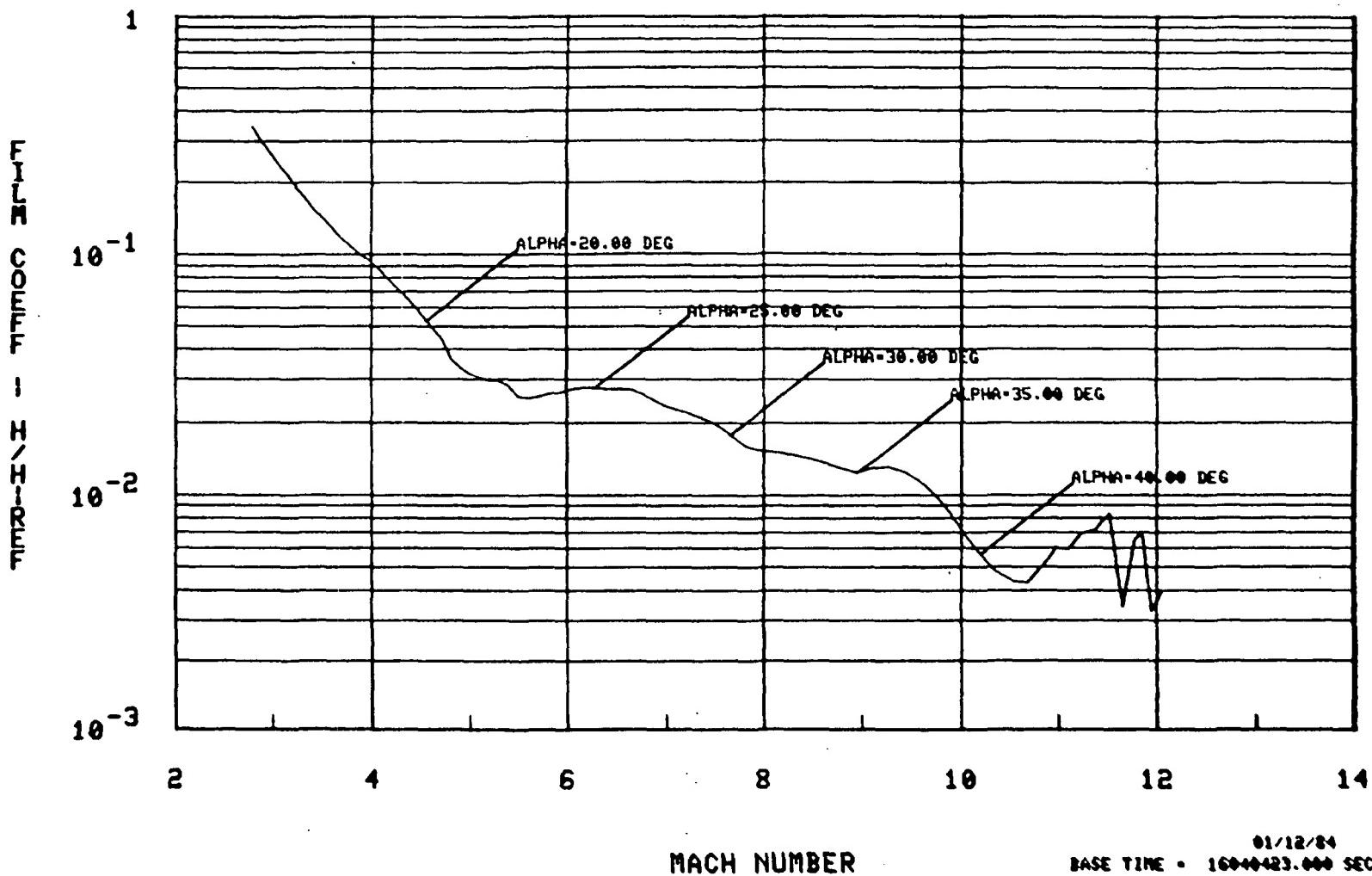
B-328

MACH NUMBER

01/11/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

U09T9736A/H-REF 965-1360 SEC



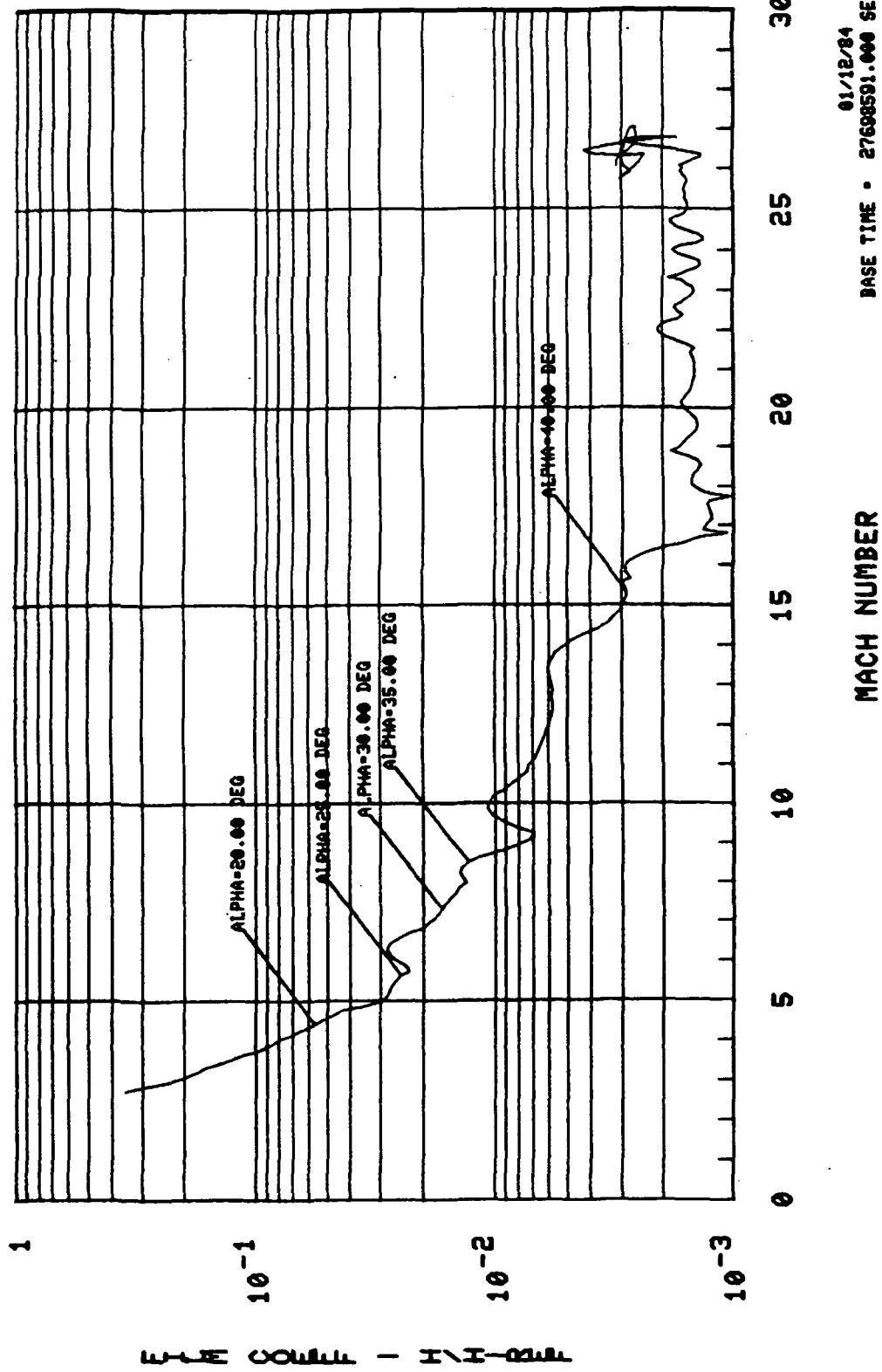
MACH NUMBER

01/12/84

BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

U09T9736A/H-REF 150-1430 SEC



STS-1 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

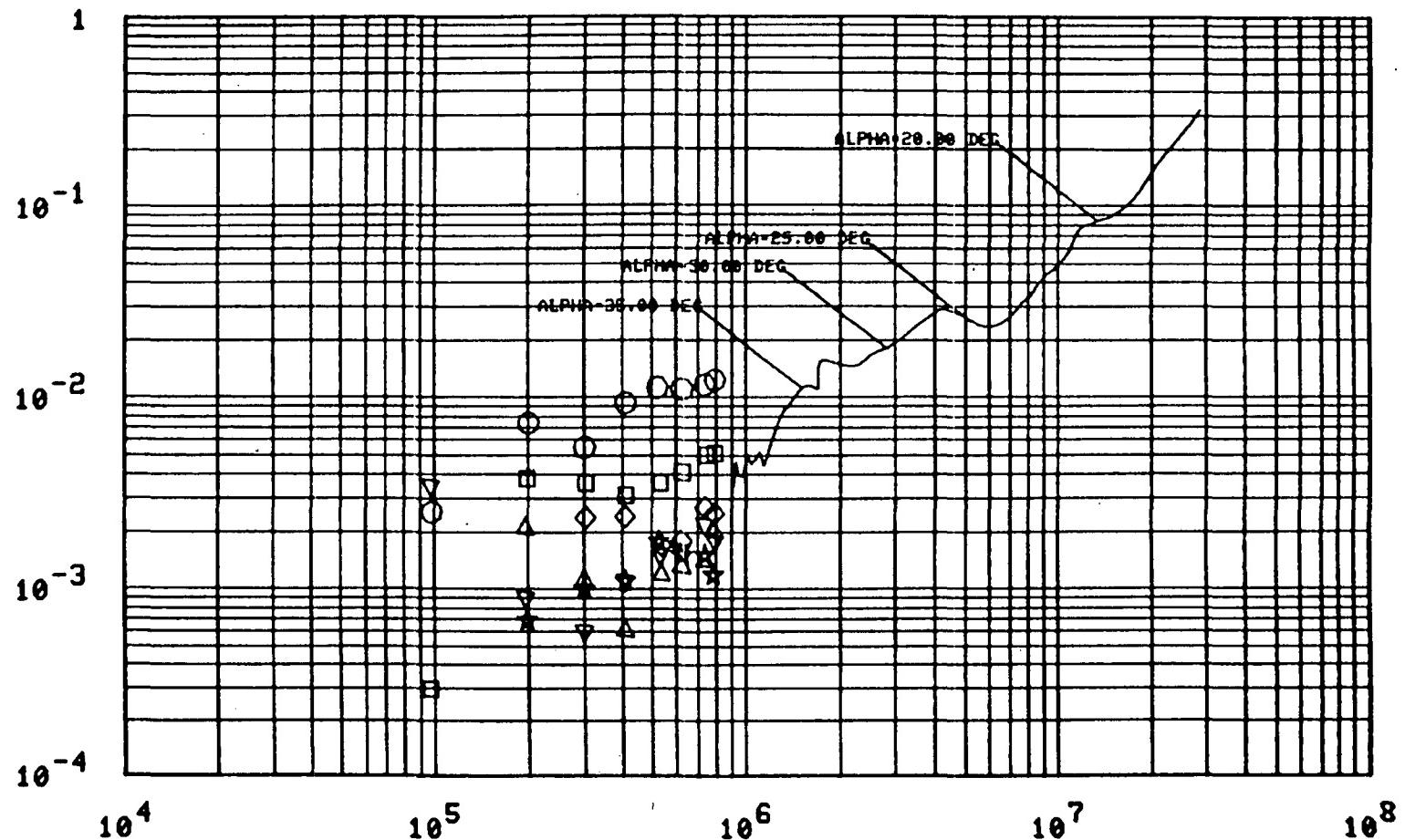
○□◇△★

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U09T9736A/H-REF 1065-1500 SEC

LINE CONN - H/H-AWML

B-331



REYNOLDS NUMBER (NS)

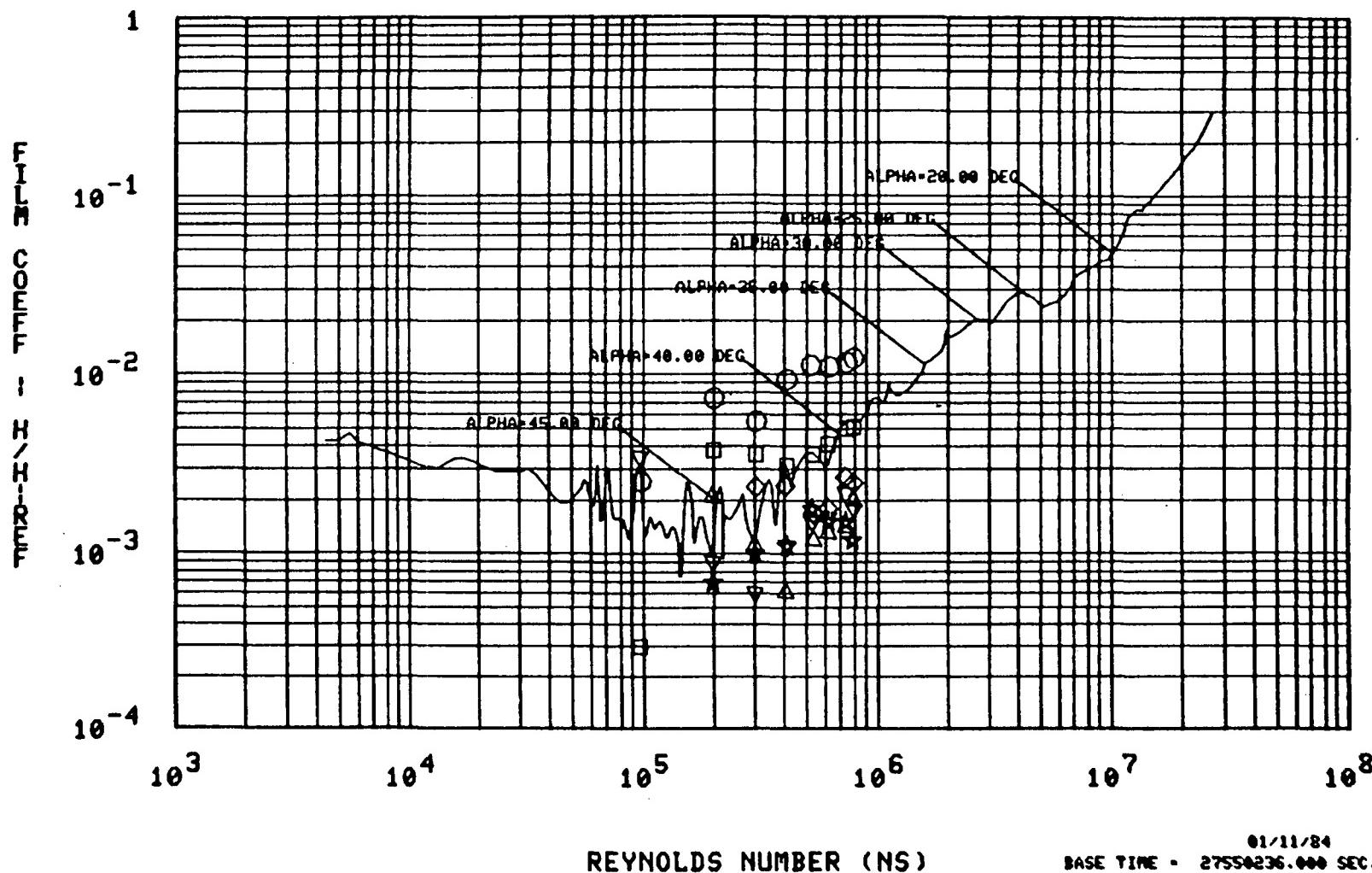
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

U09T9736A/H-REF 200-1530 SEC

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES



B-332

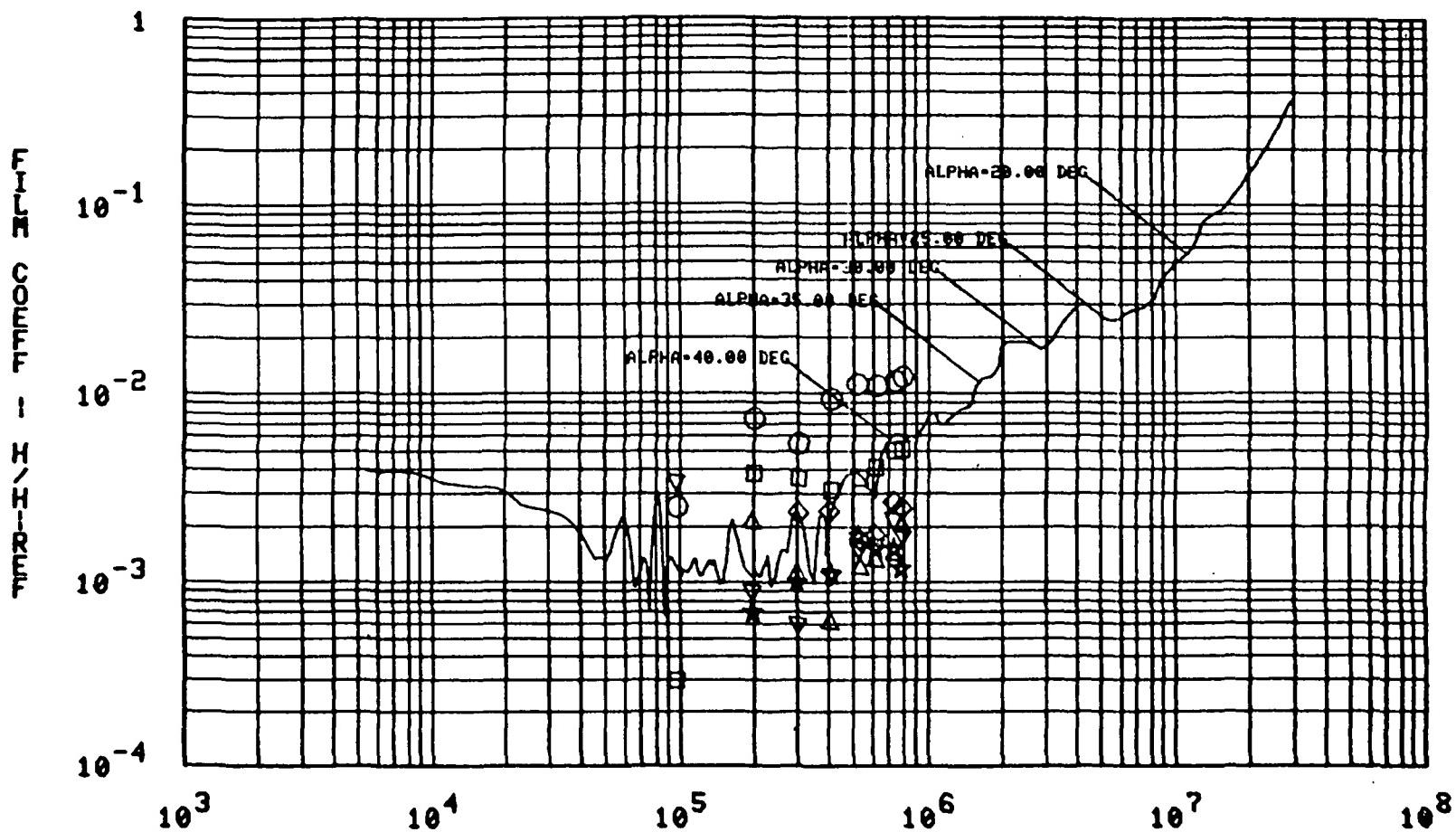
01/11/84

BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U09T9736A/H-REF 200-1440 SEC



B-333

REYNOLDS NUMBER (NS)

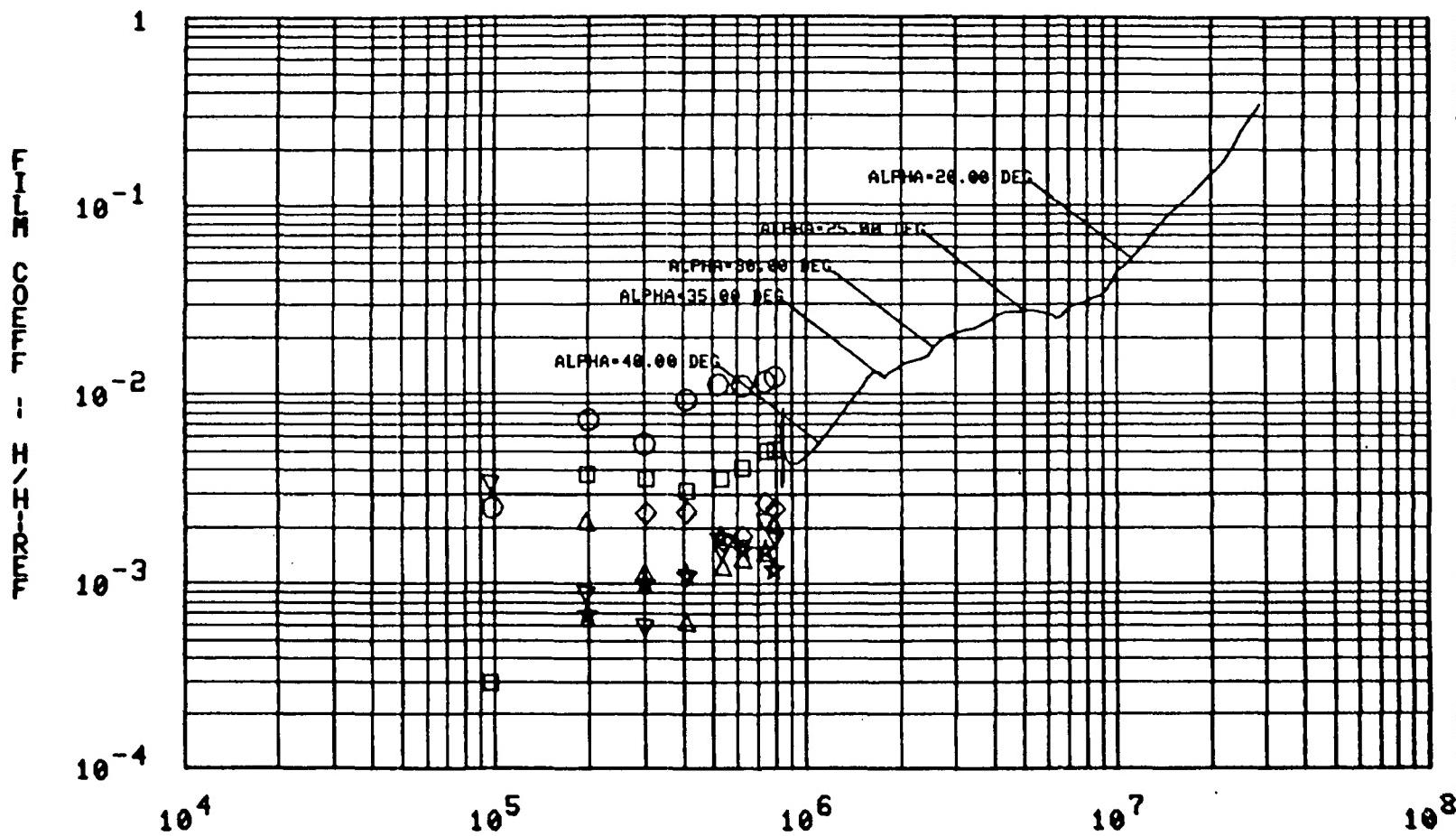
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U09T9736A/H-REF 965-1360 SEC



B-334

REYNOLDS NUMBER (NS)

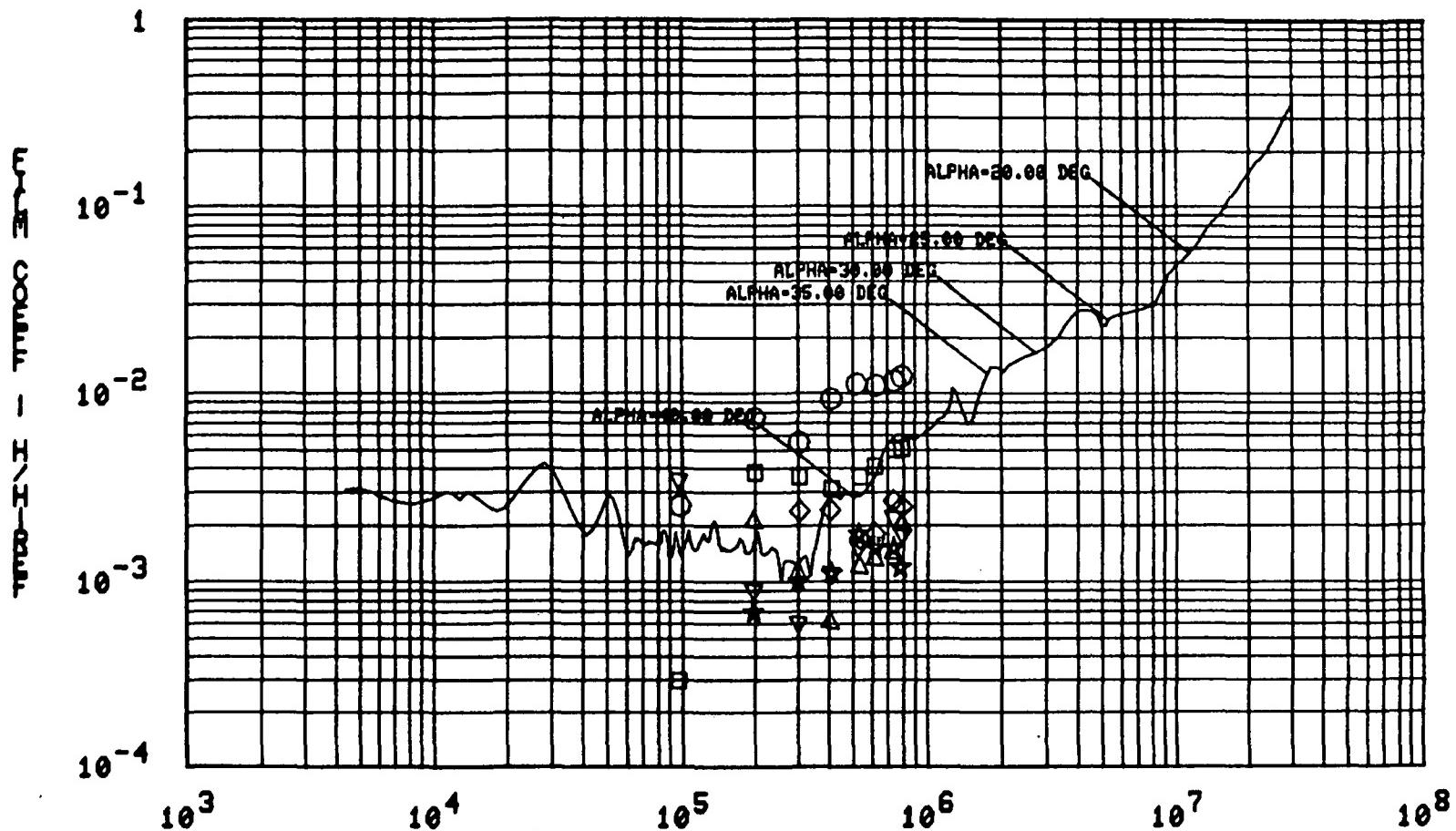
01/18/84
 BASE TIME = 1604483.000 SEC

STS-5 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U09T9736A/H-REF 150-1430 SEC

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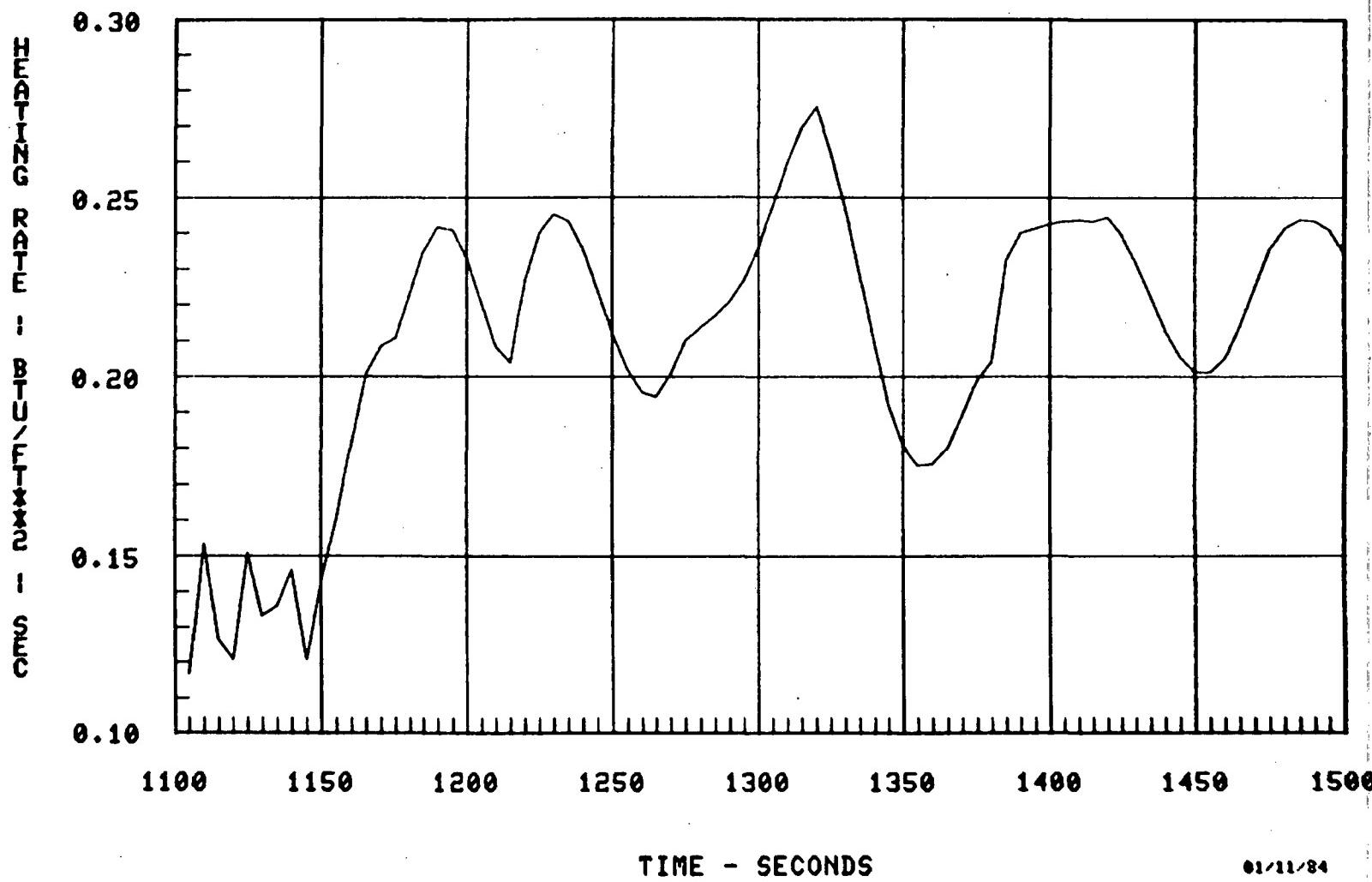
B-335

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME • 87698591.000 SEC.

STS-1 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

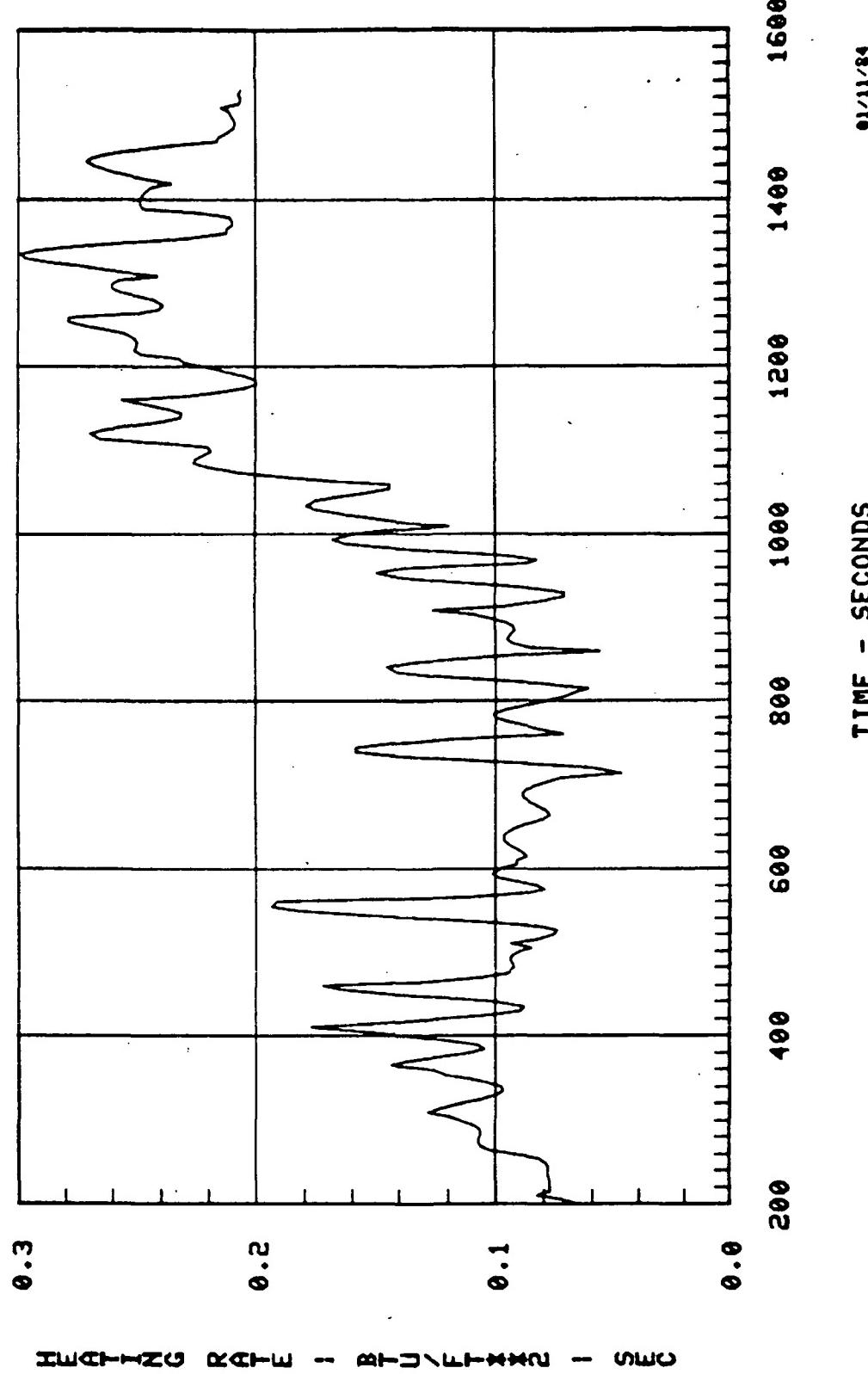
U09T9736A



B-336

STS-2 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

W09T9736A



STS-3 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

0097236A

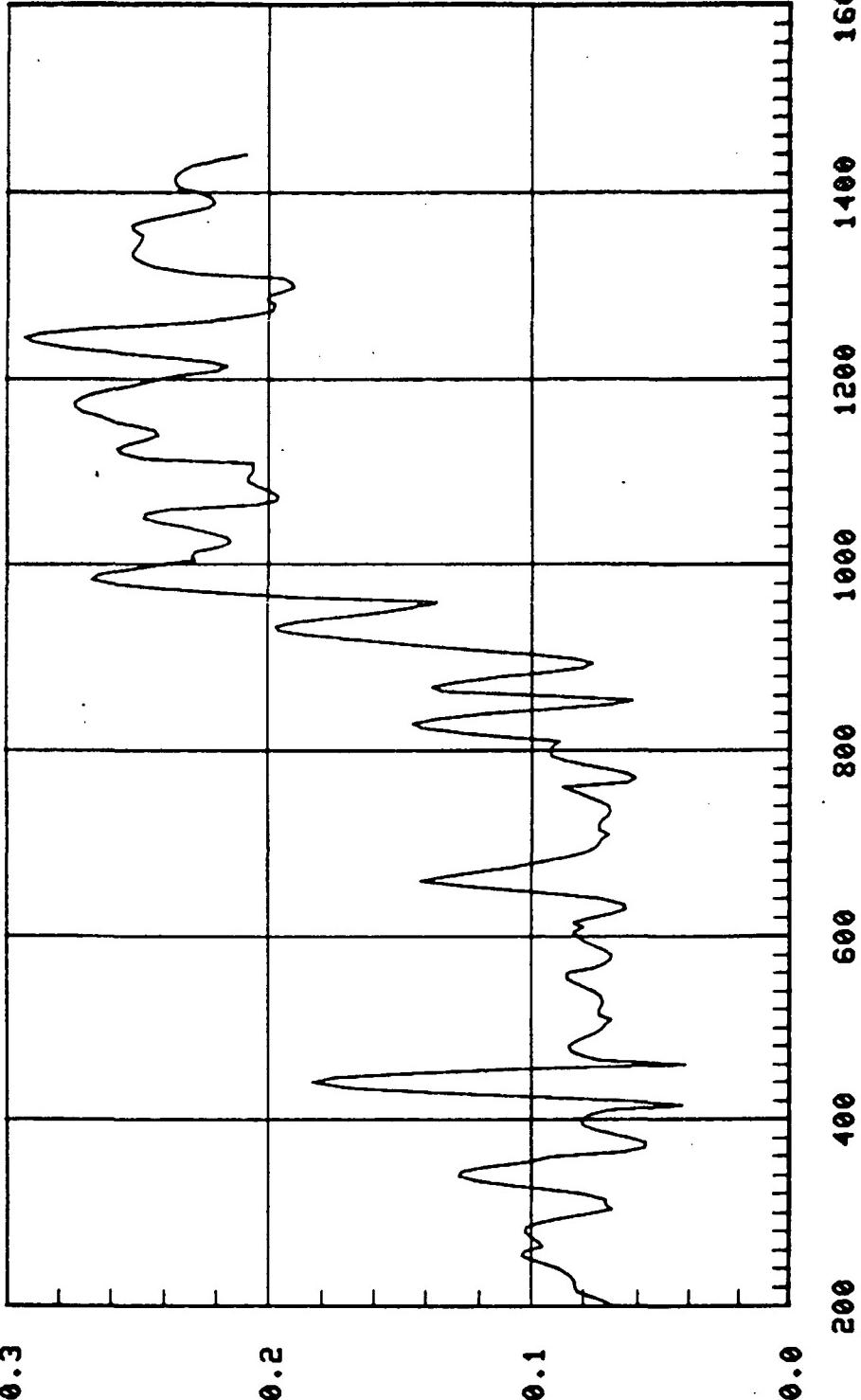
0.3

0.2

0.1

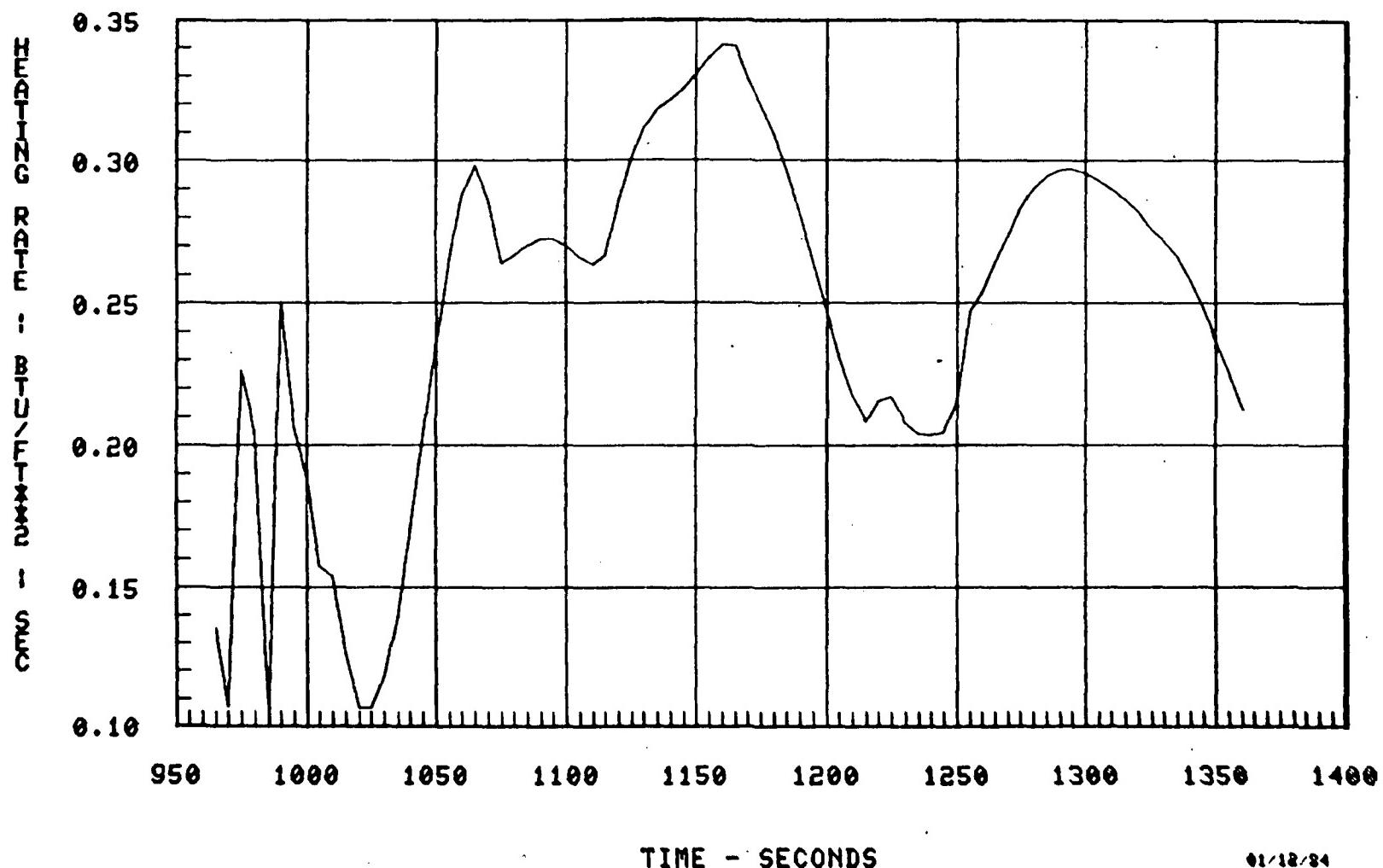
0.0

SWING RATE -- RAD/SEC -- SEC



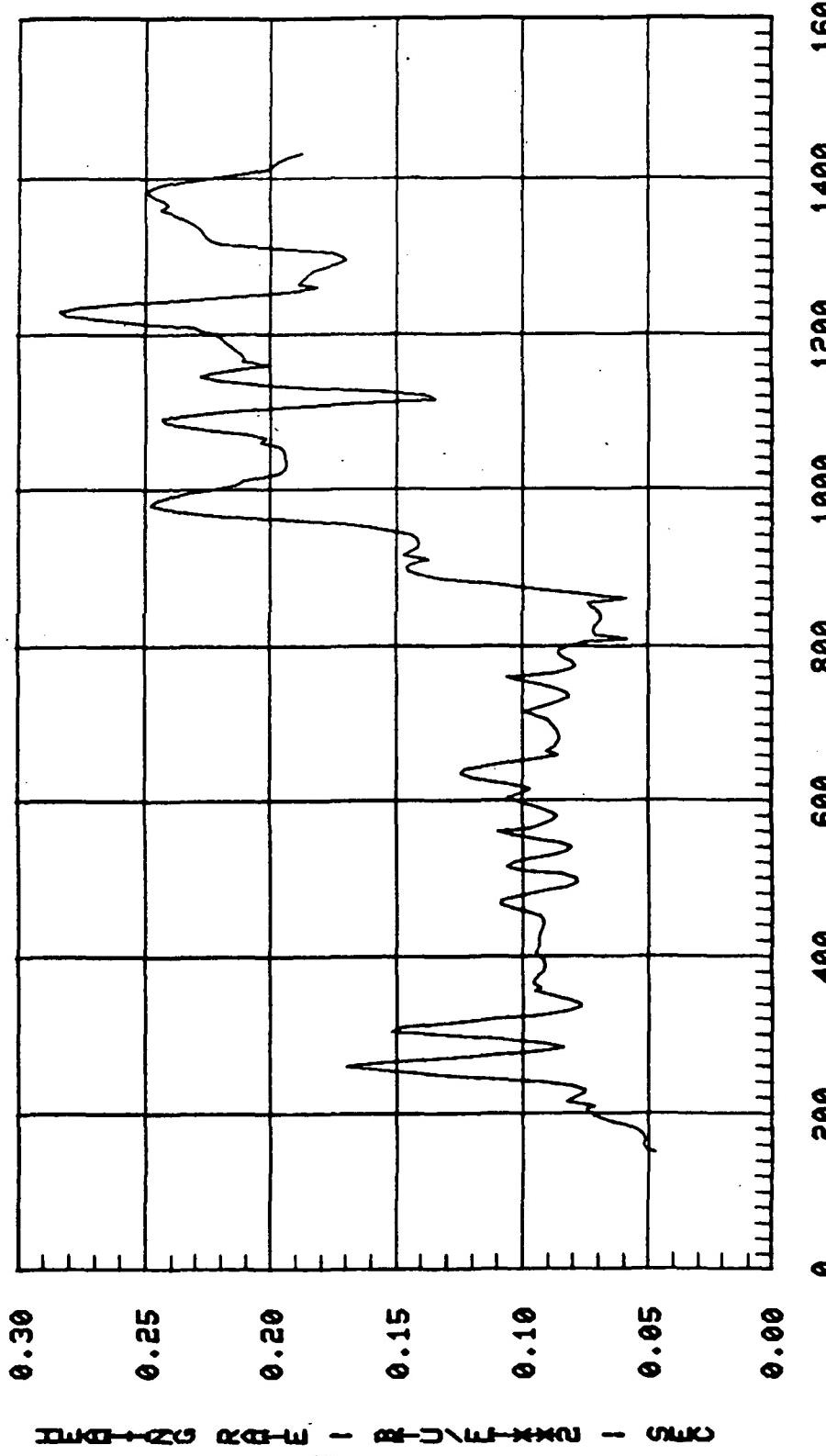
STS-4 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

U09T9736A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

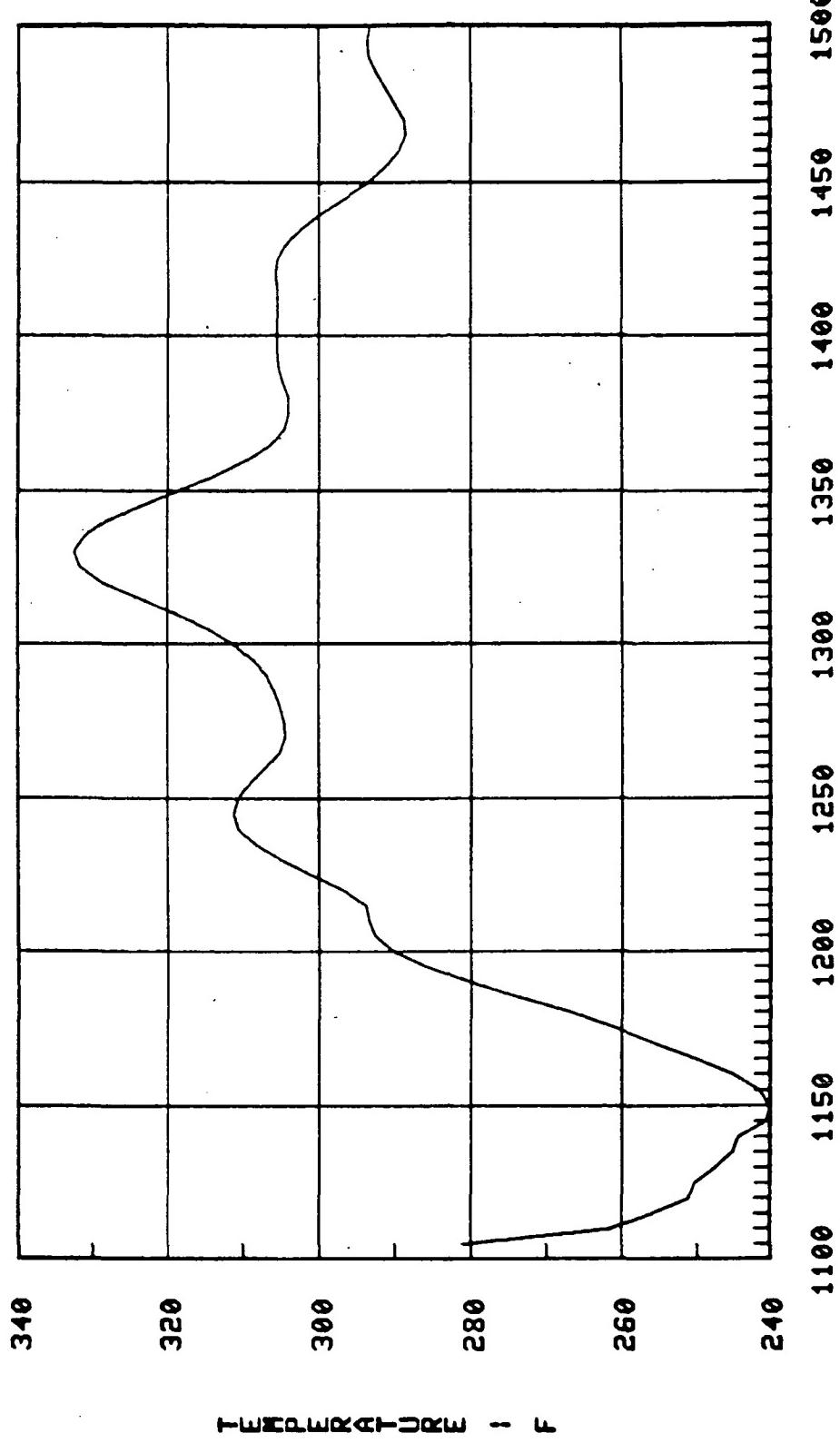
VER9736A



01/12/84

STS-1 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

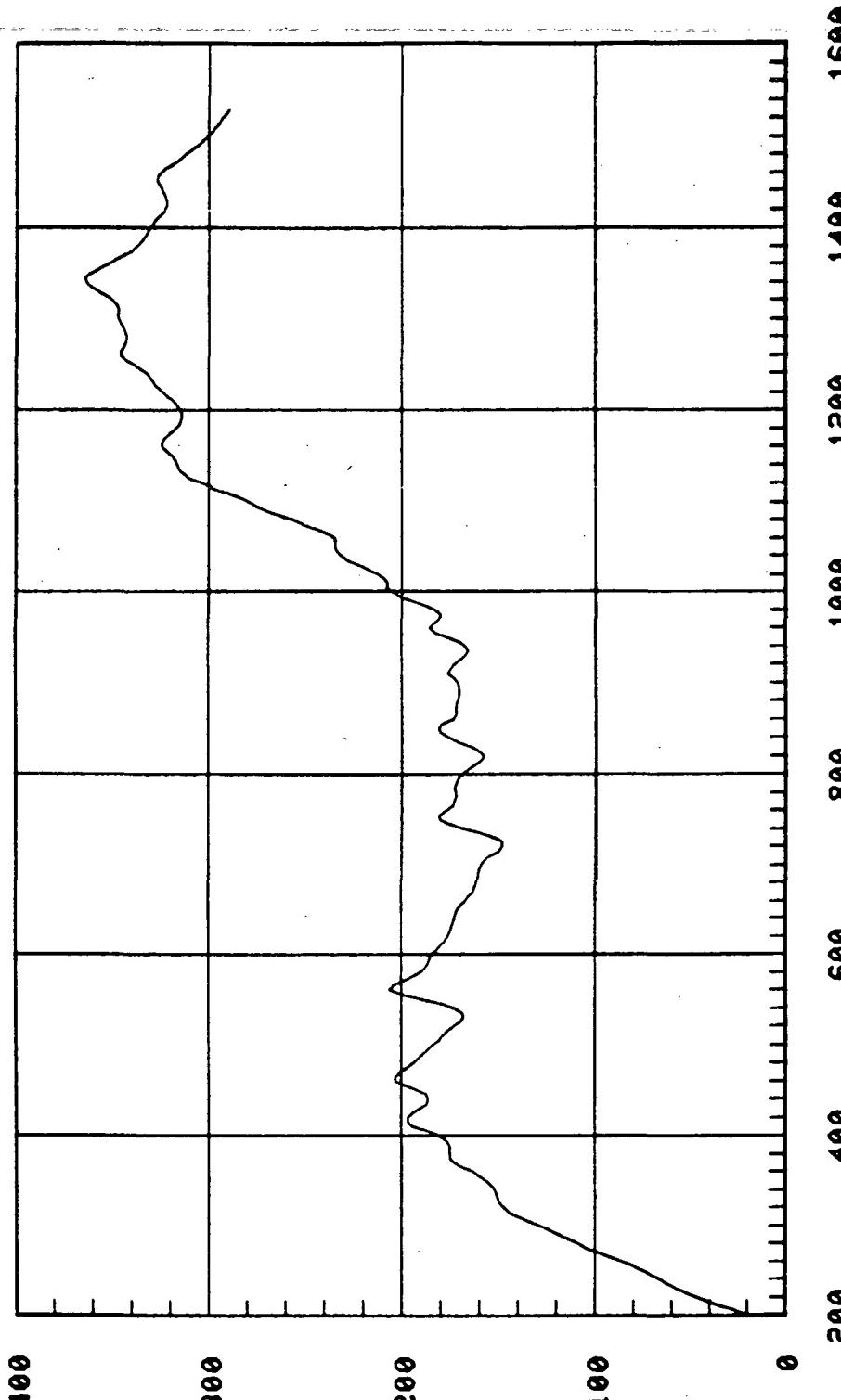
489T9736A



THERMAL DRAW -- F

STS-2 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

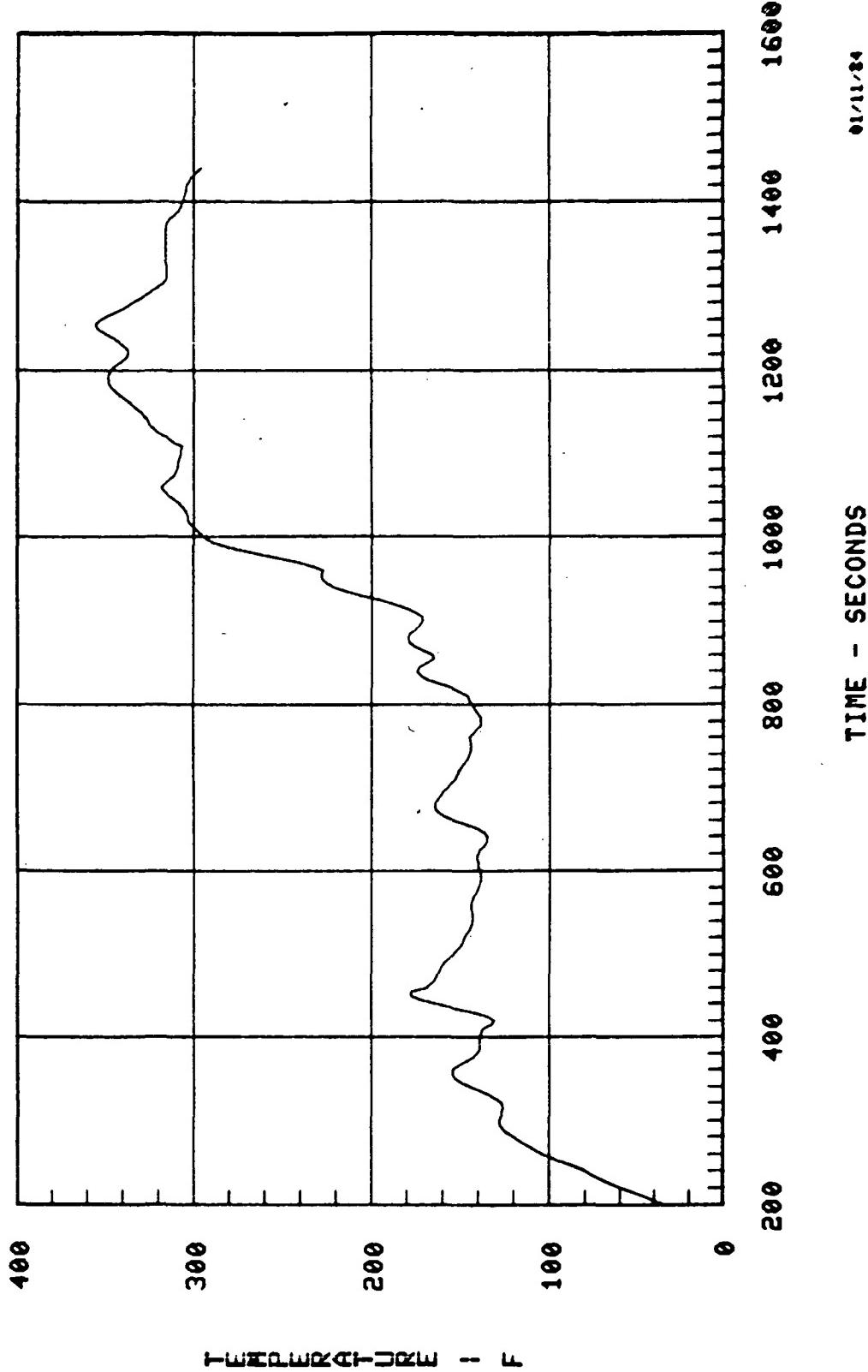
009T9736A



F-FORWARD AT DOWN -- F

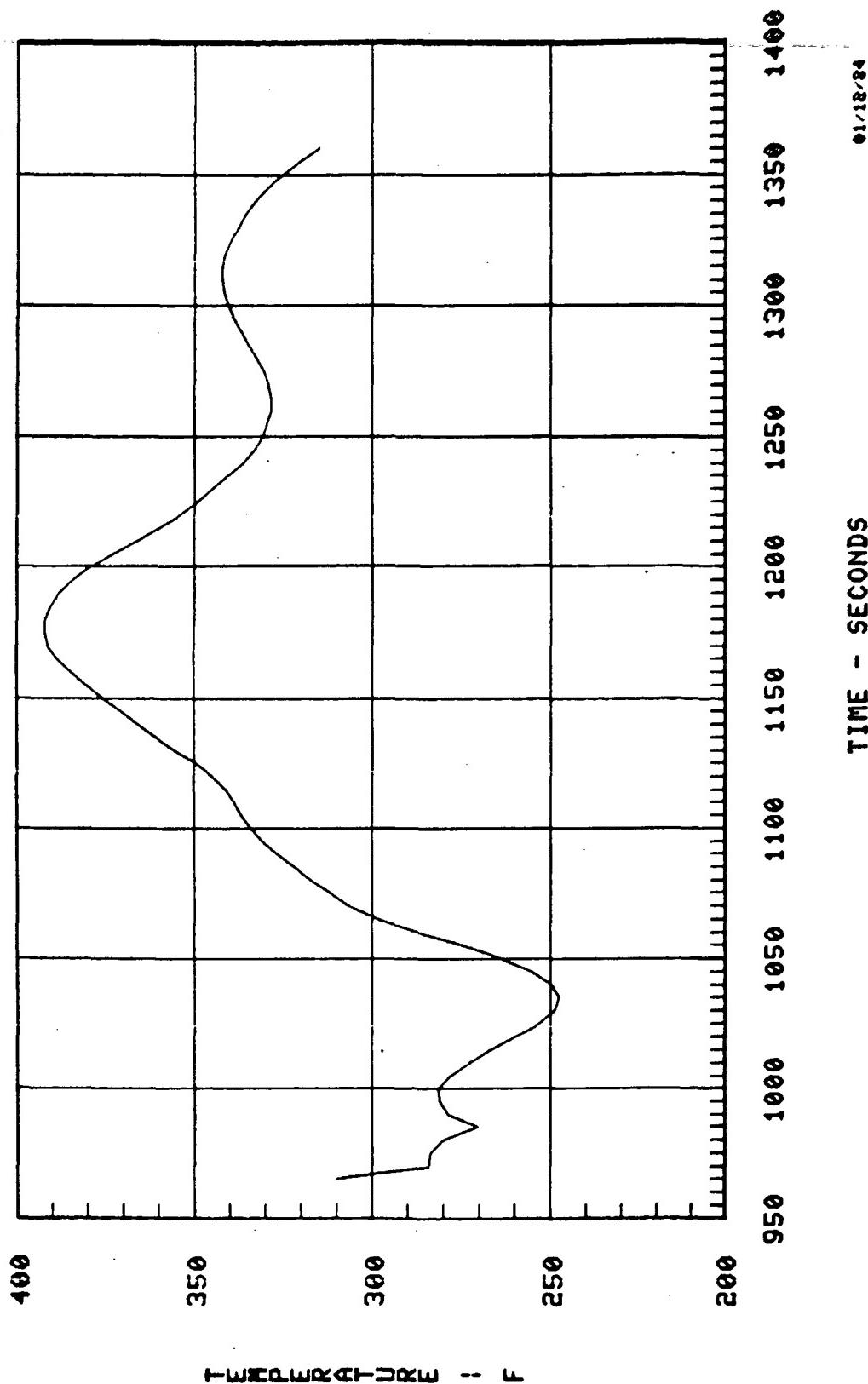
STS-3 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

VE9T9736A



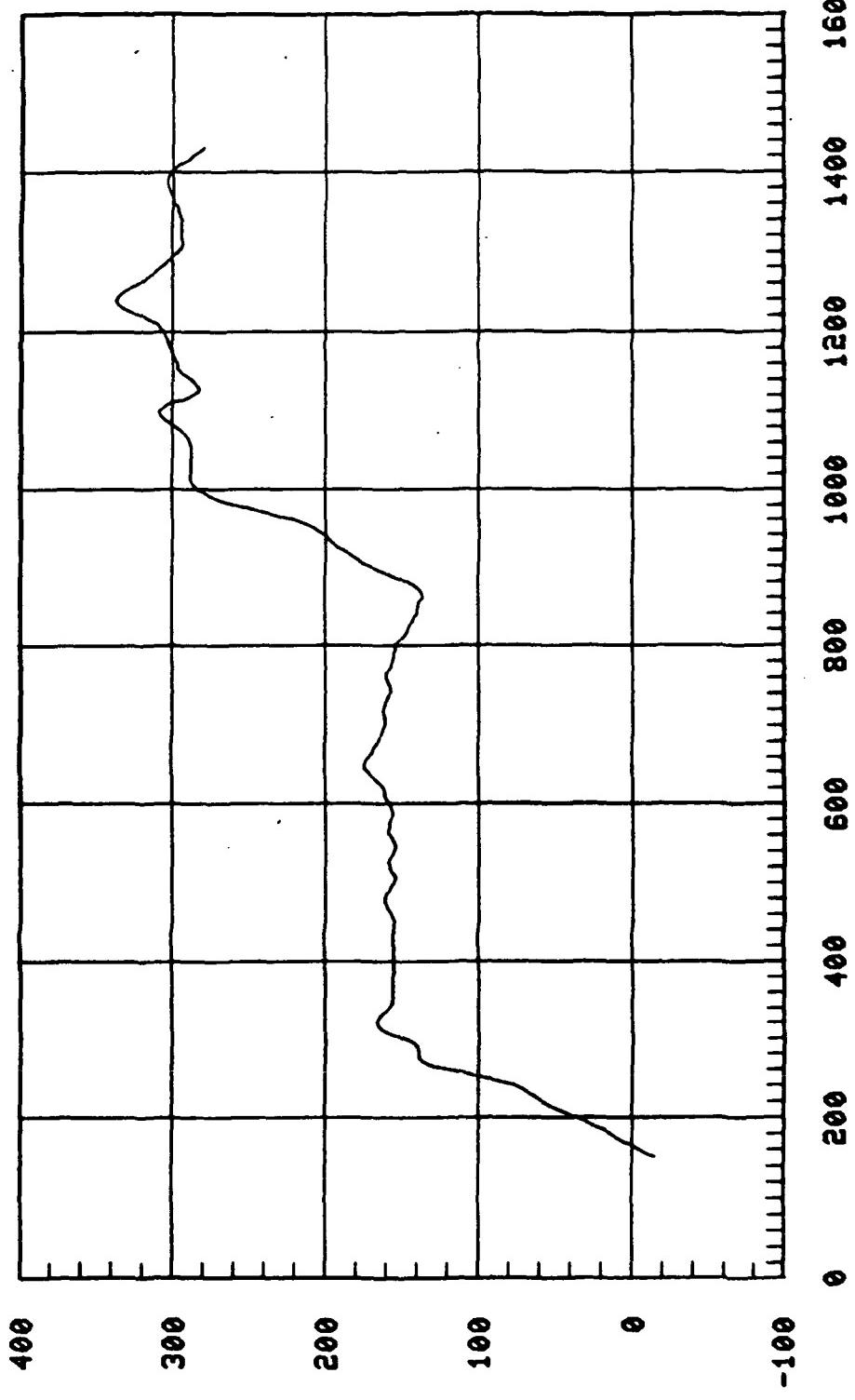
STS-4 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

U09T9736A



STS-5 (107 FT LENGTH SIDE FUS X/L=0.85) Z=400

VE979736A



~~HUEWNER - E~~

B-345

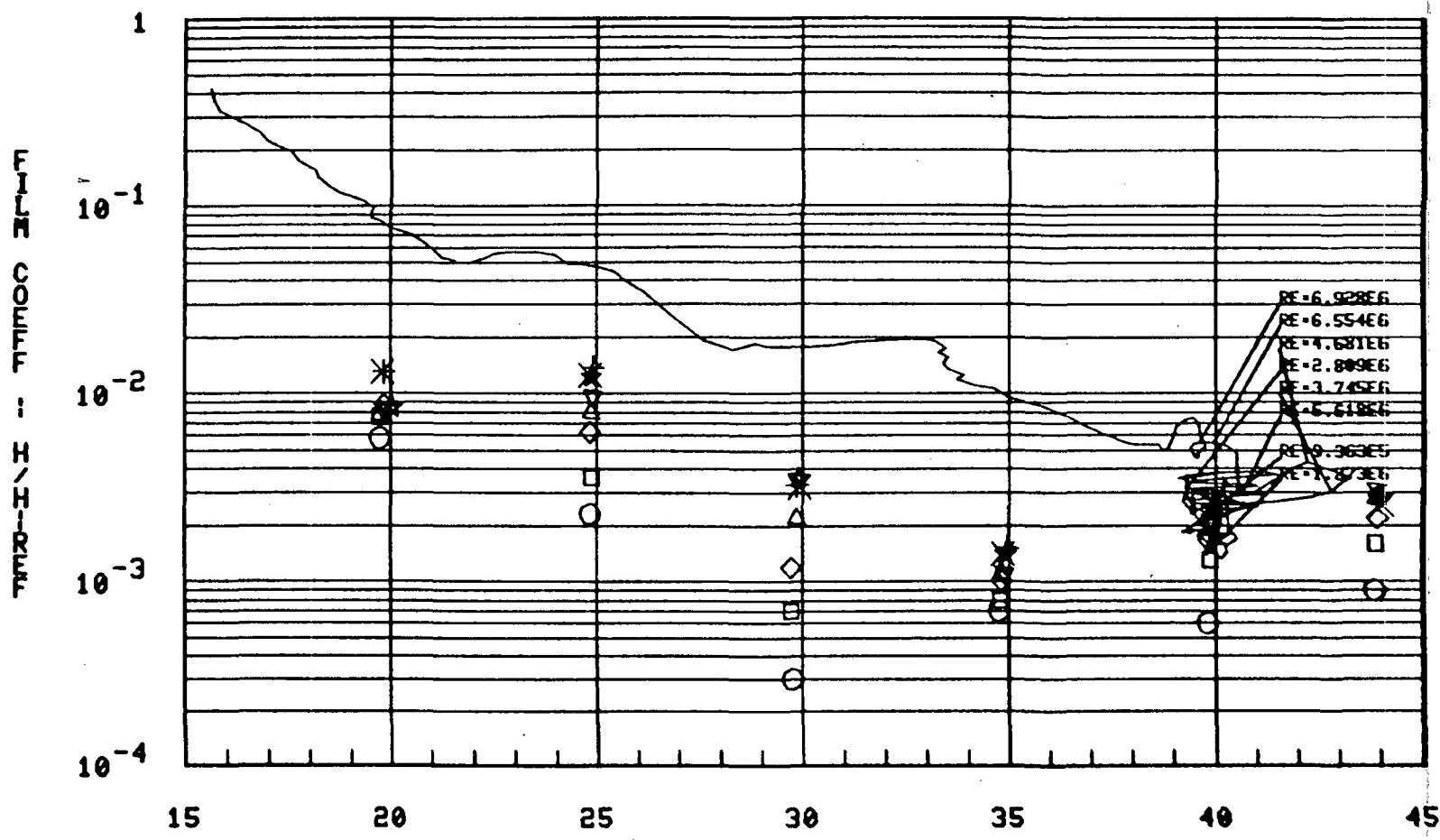
01/12/84

STS-3 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

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OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U67T9244A/H-REF 200-1440 SEC



B-346

ANGLE-OF-ATTACK - DEG

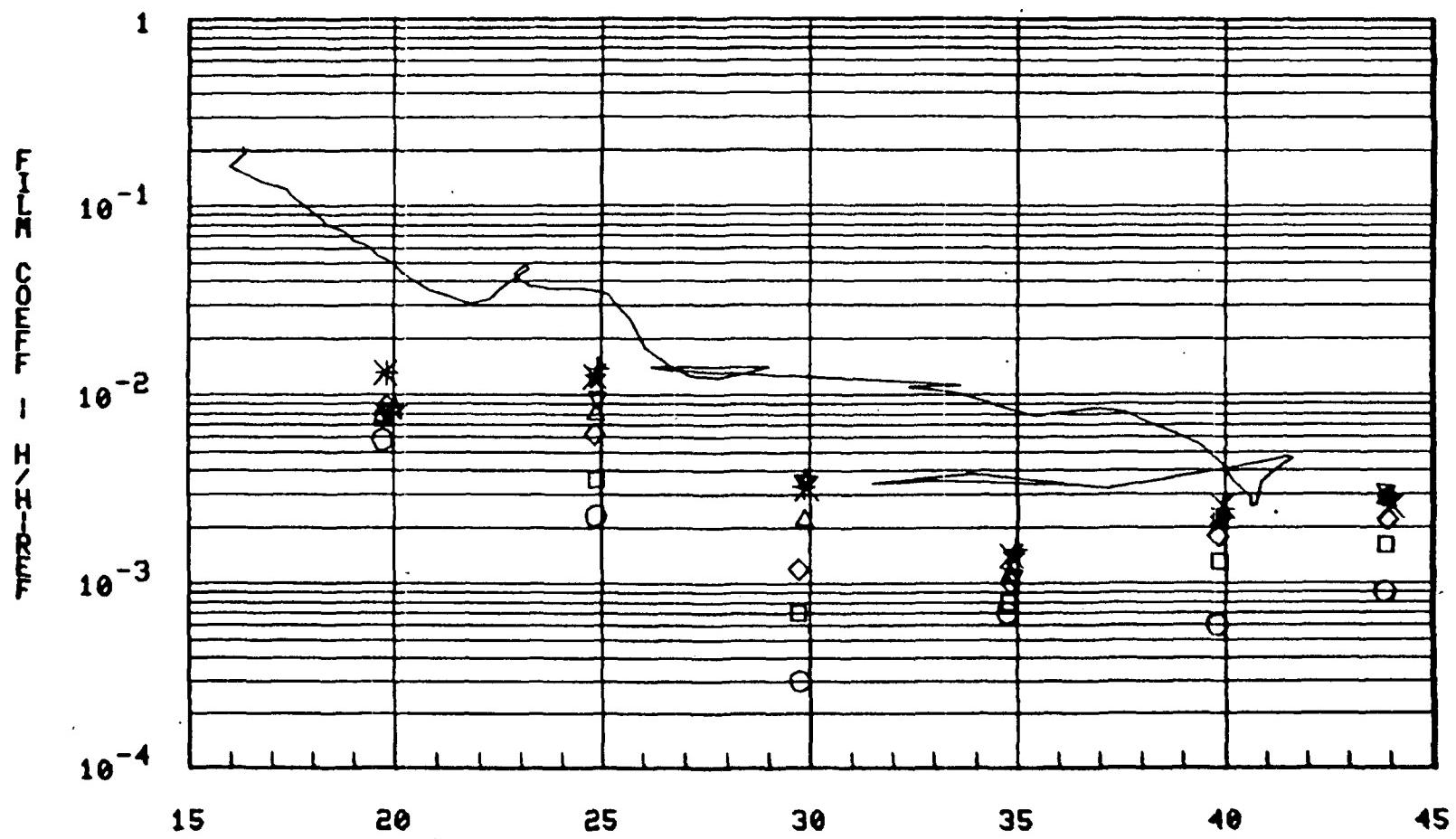
01/11/84
 BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9244A/H-REF 965-1360 SEC

O □ △ ▲ ▷ ★ + X
 X



B-347

ANGLE-OF-ATTACK - DEG

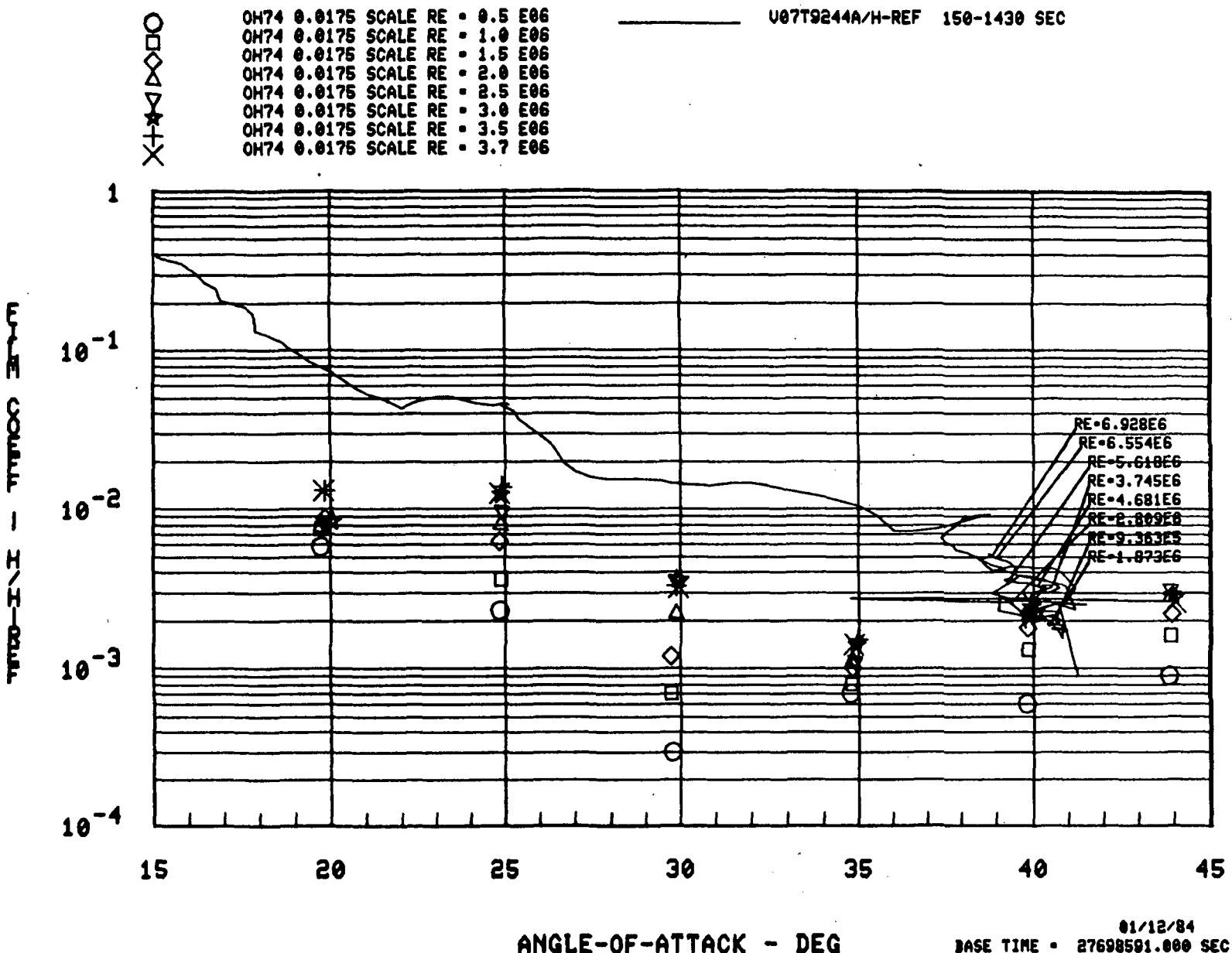
01/12/84

BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

OH74 0.0175 SCALE RE • 0.5 E06
 OH74 0.0175 SCALE RE • 1.0 E06
 OH74 0.0175 SCALE RE • 1.5 E06
 OH74 0.0175 SCALE RE • 2.0 E06
 OH74 0.0175 SCALE RE • 2.5 E06
 OH74 0.0175 SCALE RE • 3.0 E06
 OH74 0.0175 SCALE RE • 3.5 E06
 OH74 0.0175 SCALE RE • 3.7 E06

U07T9244A/H-REF 150-1430 SEC



B-348

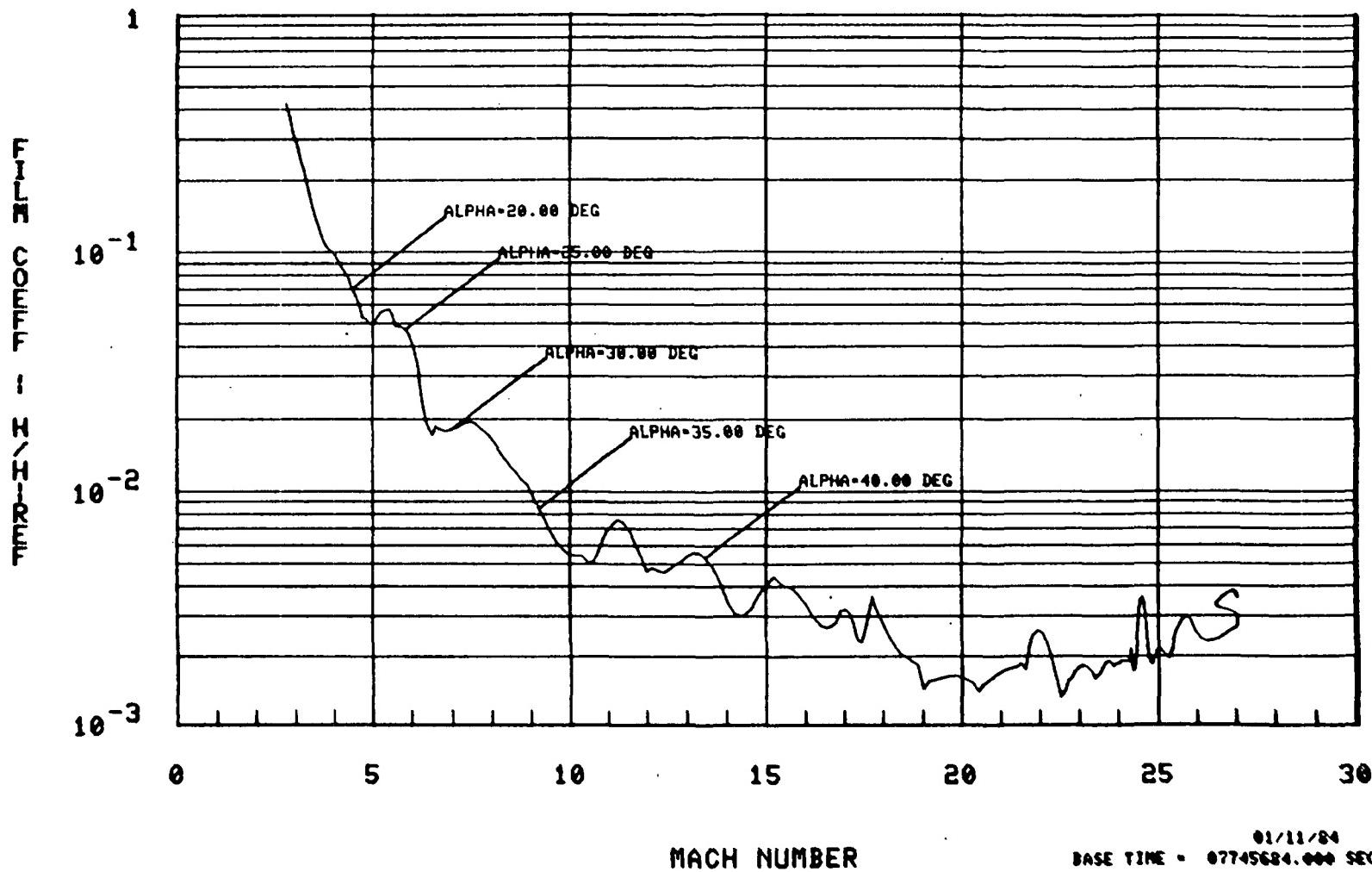
ANGLE-OF-ATTACK - DEG

01/12/84
 BASE TIME • 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

U07T9244A/H-REF 200-1440 SEC

B-349

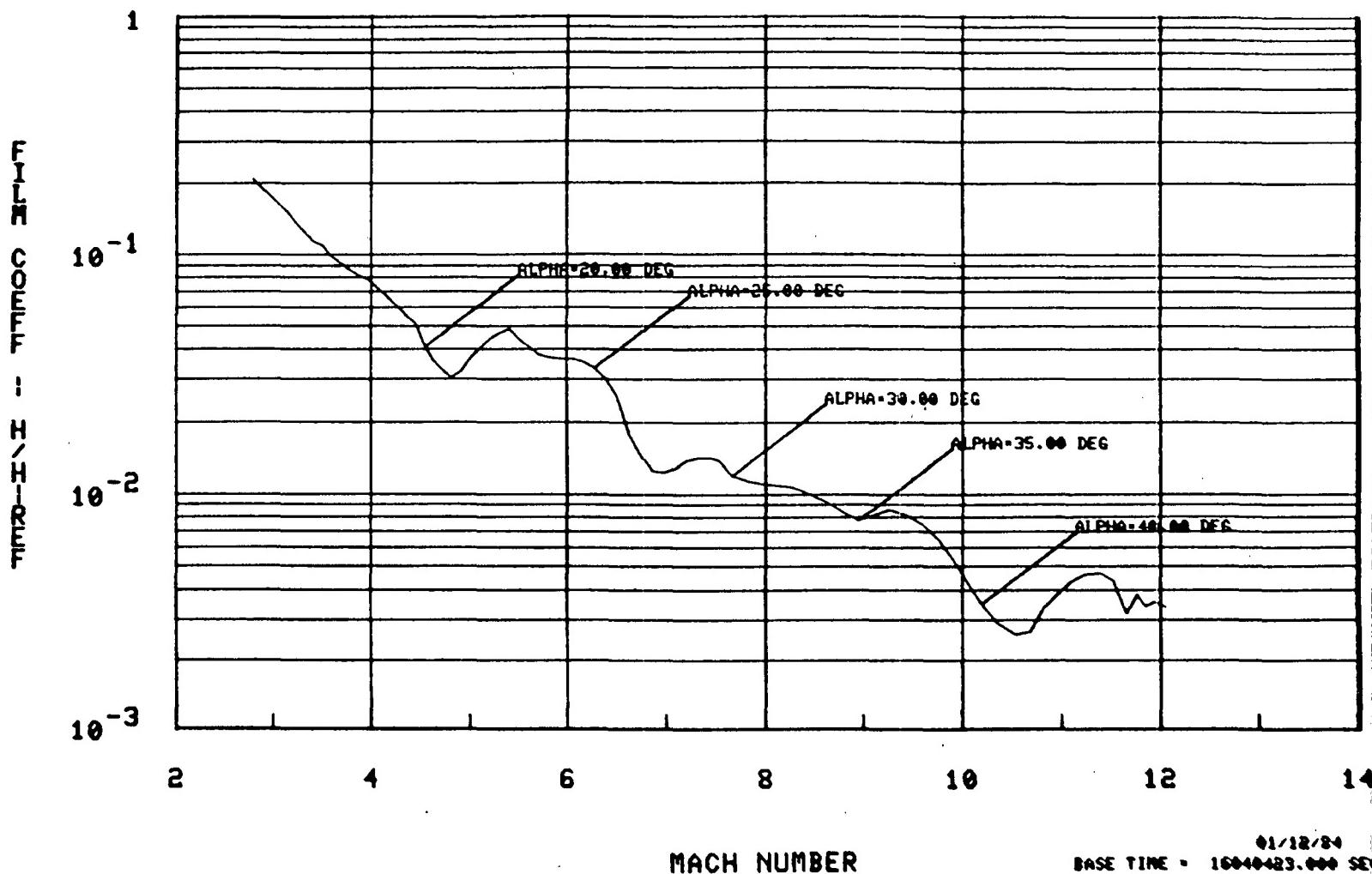


01/11/84

BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

U07T9244A/H-REF 965-1360 SEC

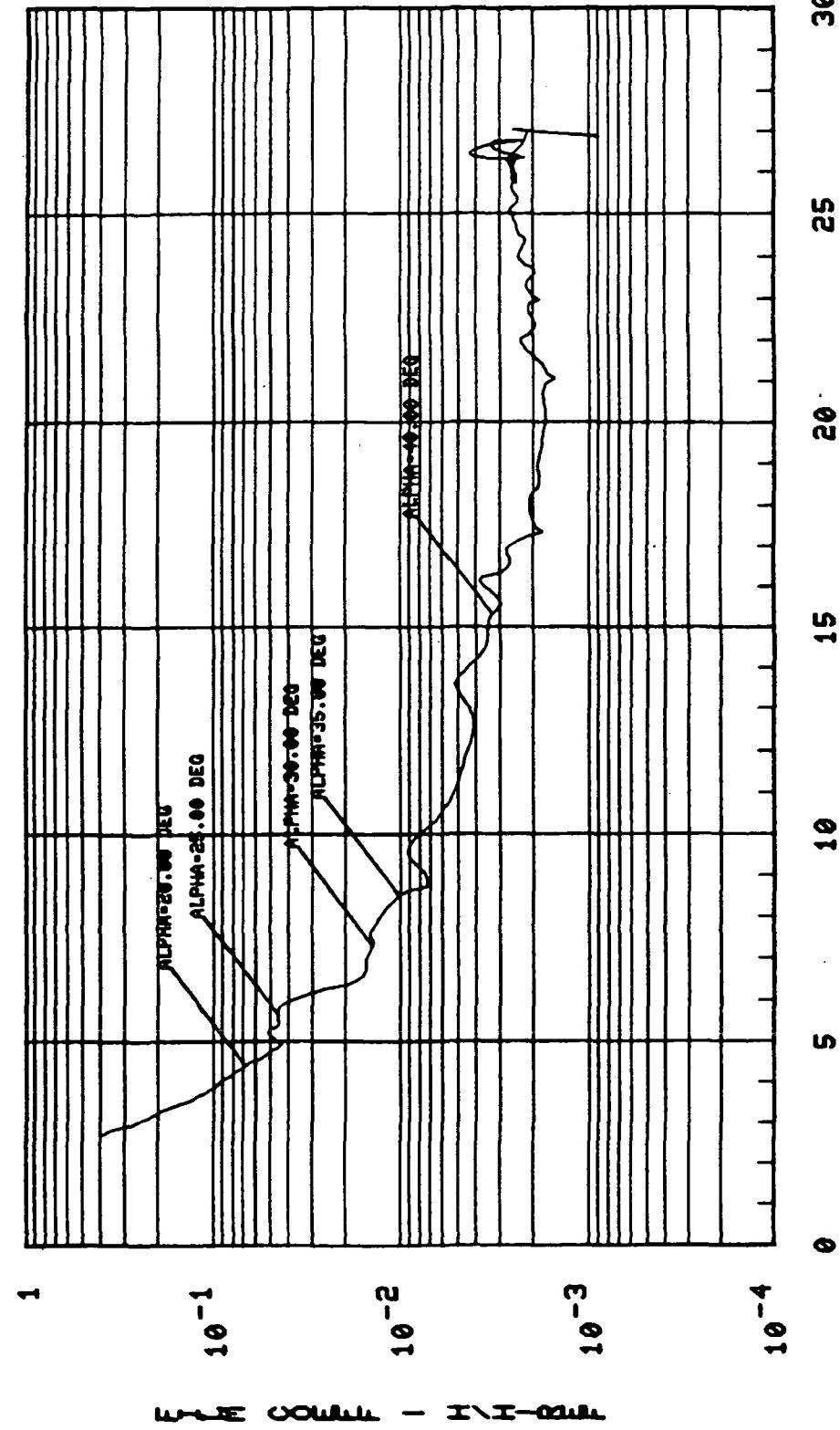


B-350

01/12/84
BASE TIME = 16040-423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

46779244A/H-REF 150-1430 SEC



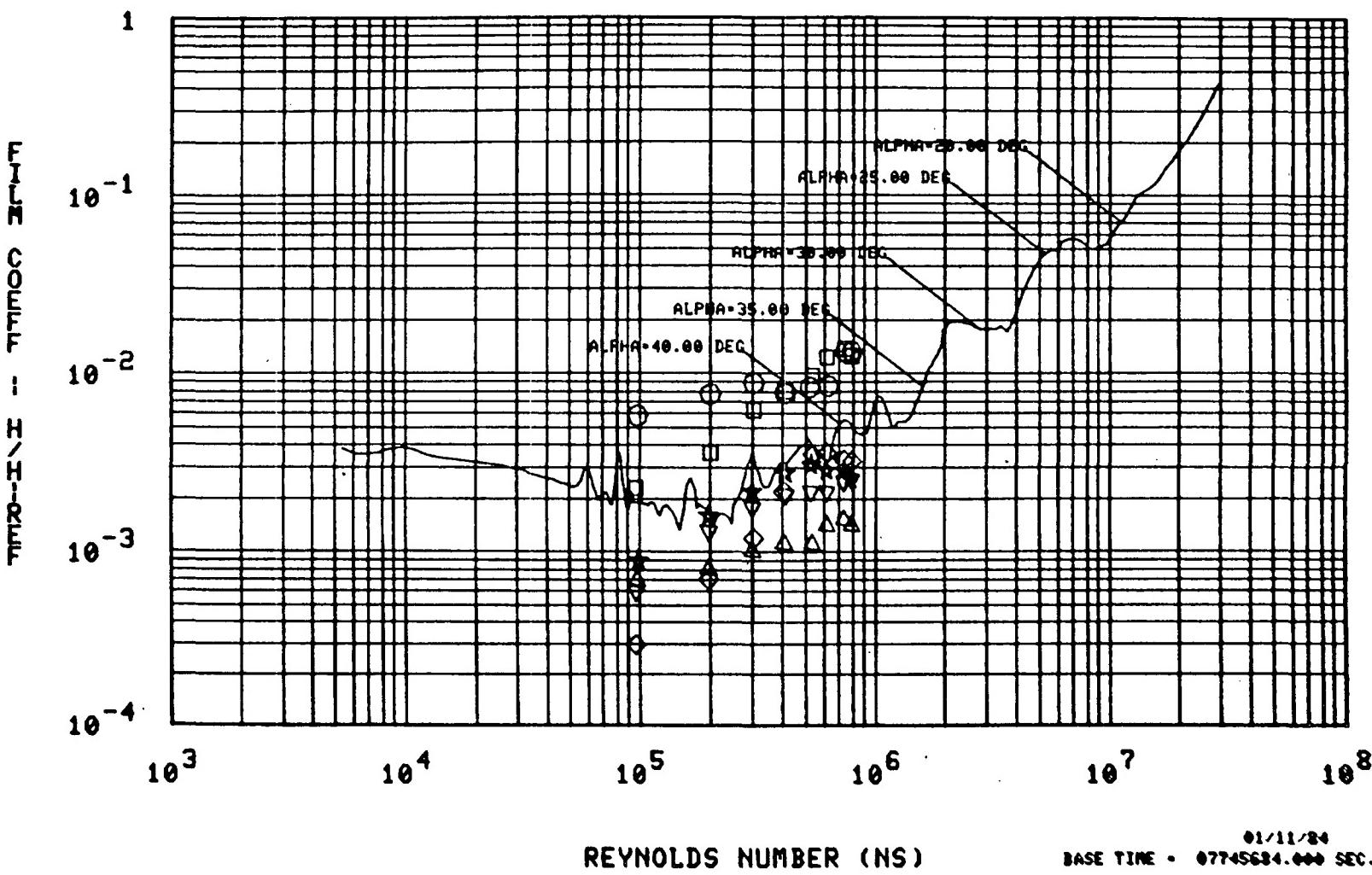
01/12/84
BASE TIME • 27688591.000 SEC.
MACH NUMBER

STS-3 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9244A/H-REF 200-1440 SEC

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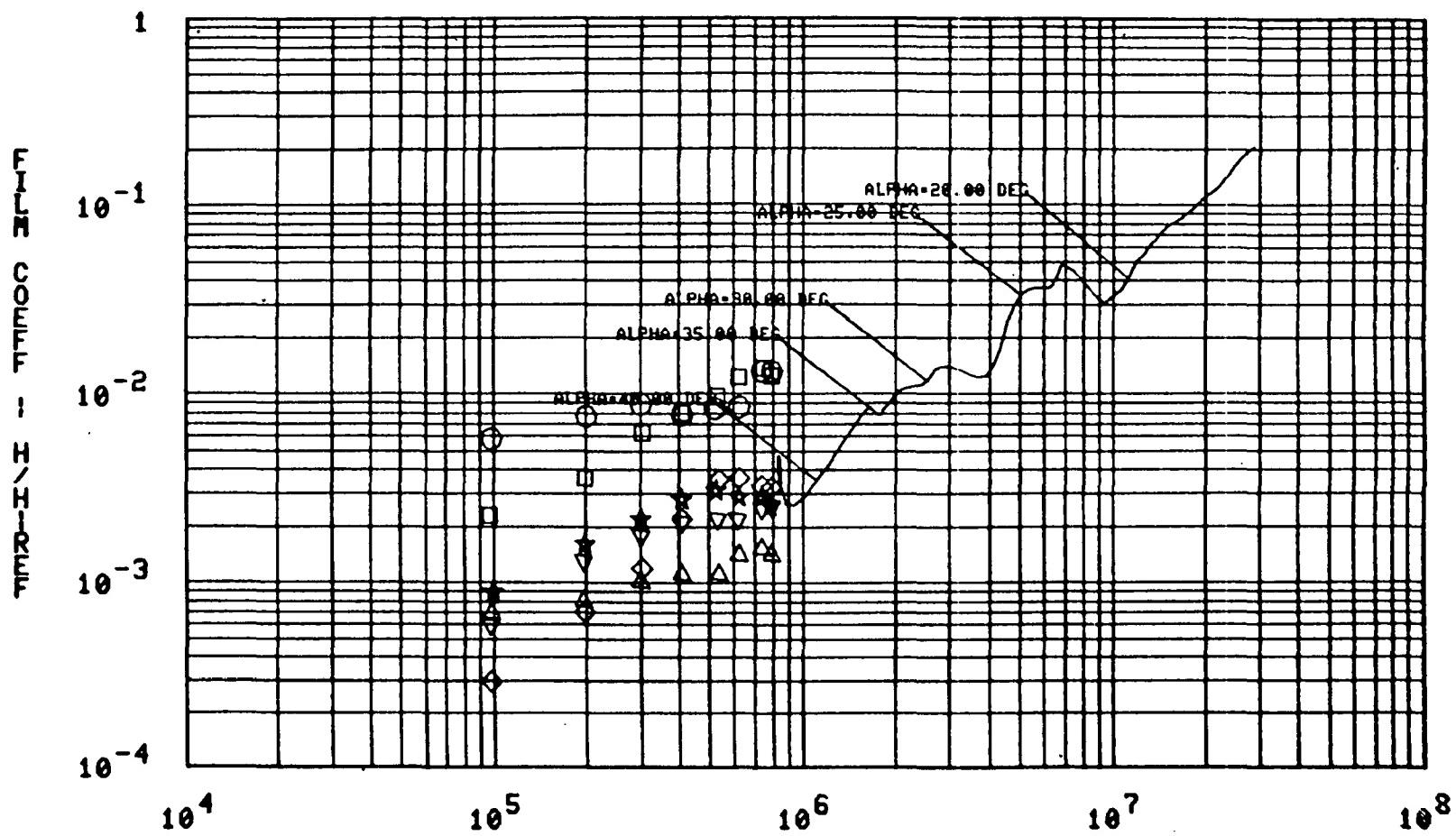


STS-4 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9244A/H-REF 965-1360 SEC



B-353

REYNOLDS NUMBER (NS)

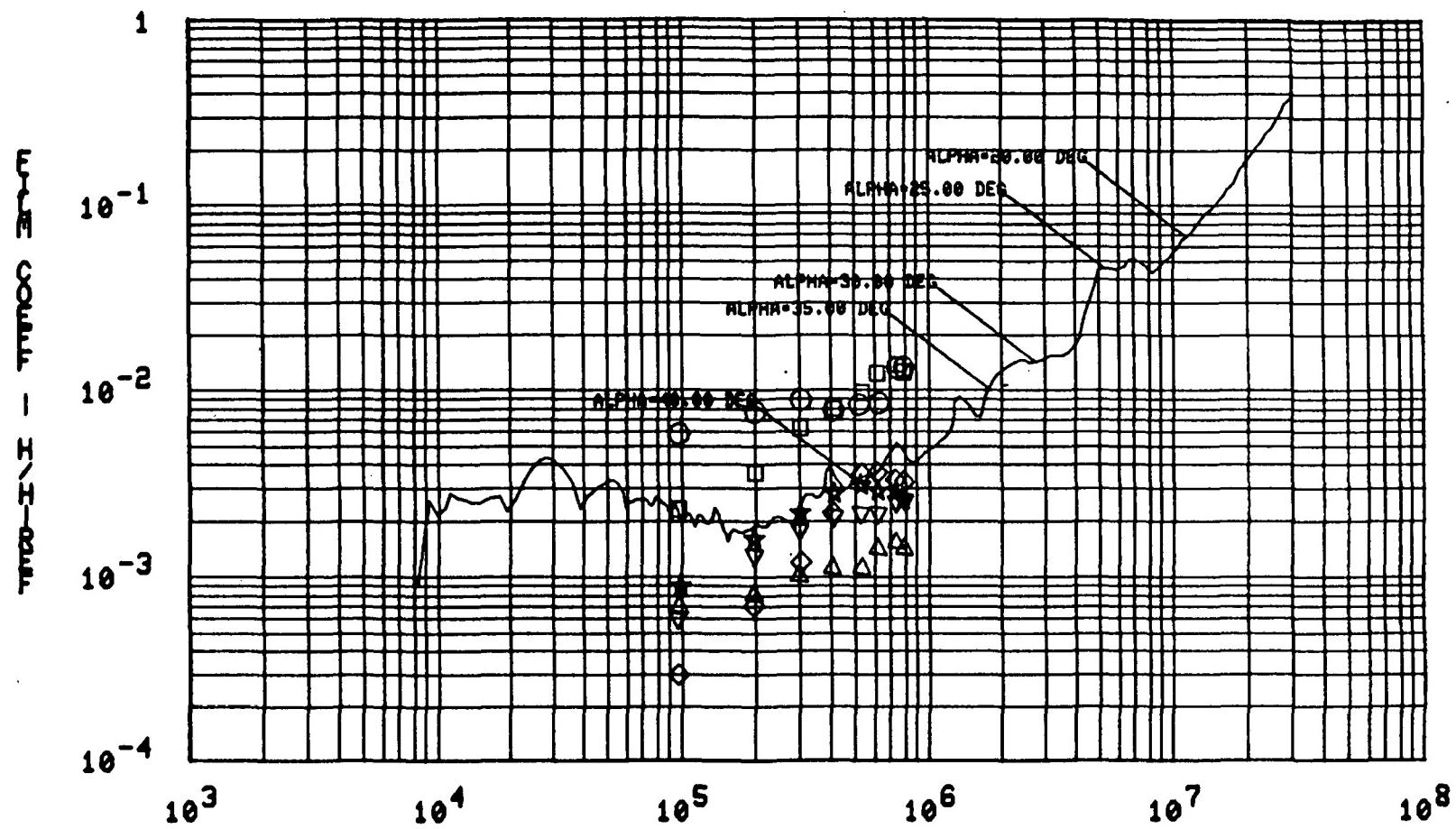
01/12/84
 BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9244A/H-REF 150-1430 SEC



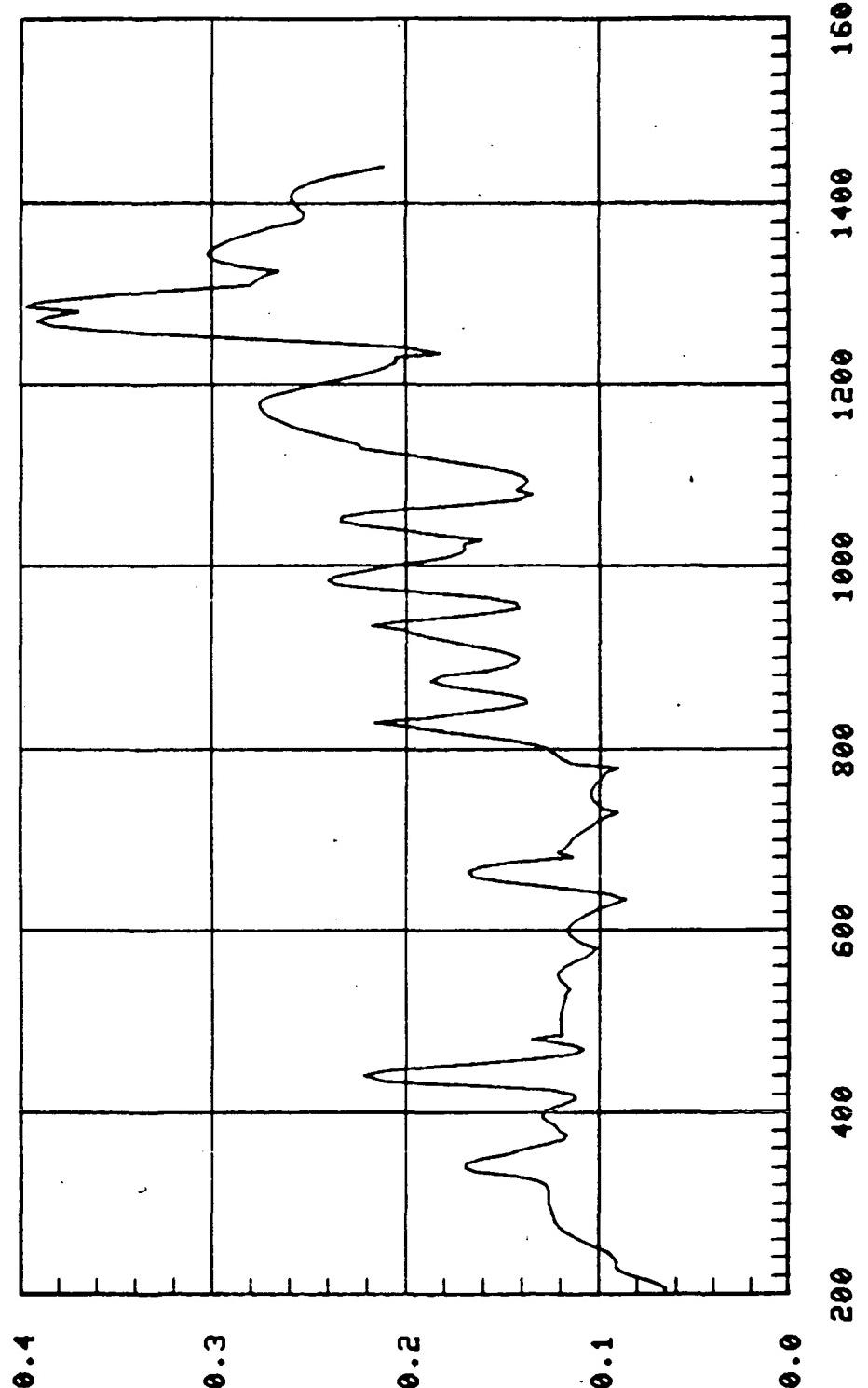
B-354

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

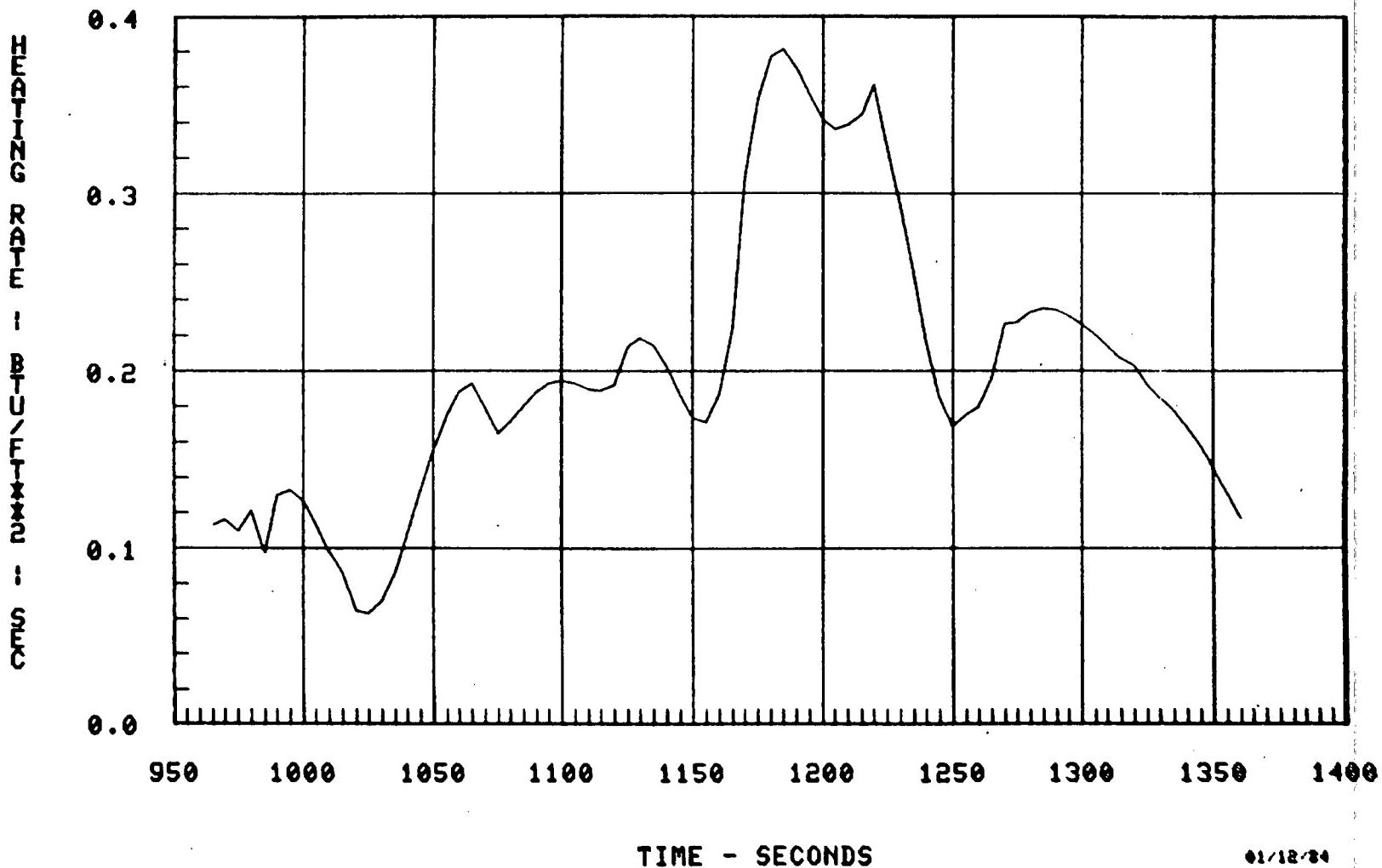
U077T9244A



SWING RATE -- DEGREES -- SEC

STS-4 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

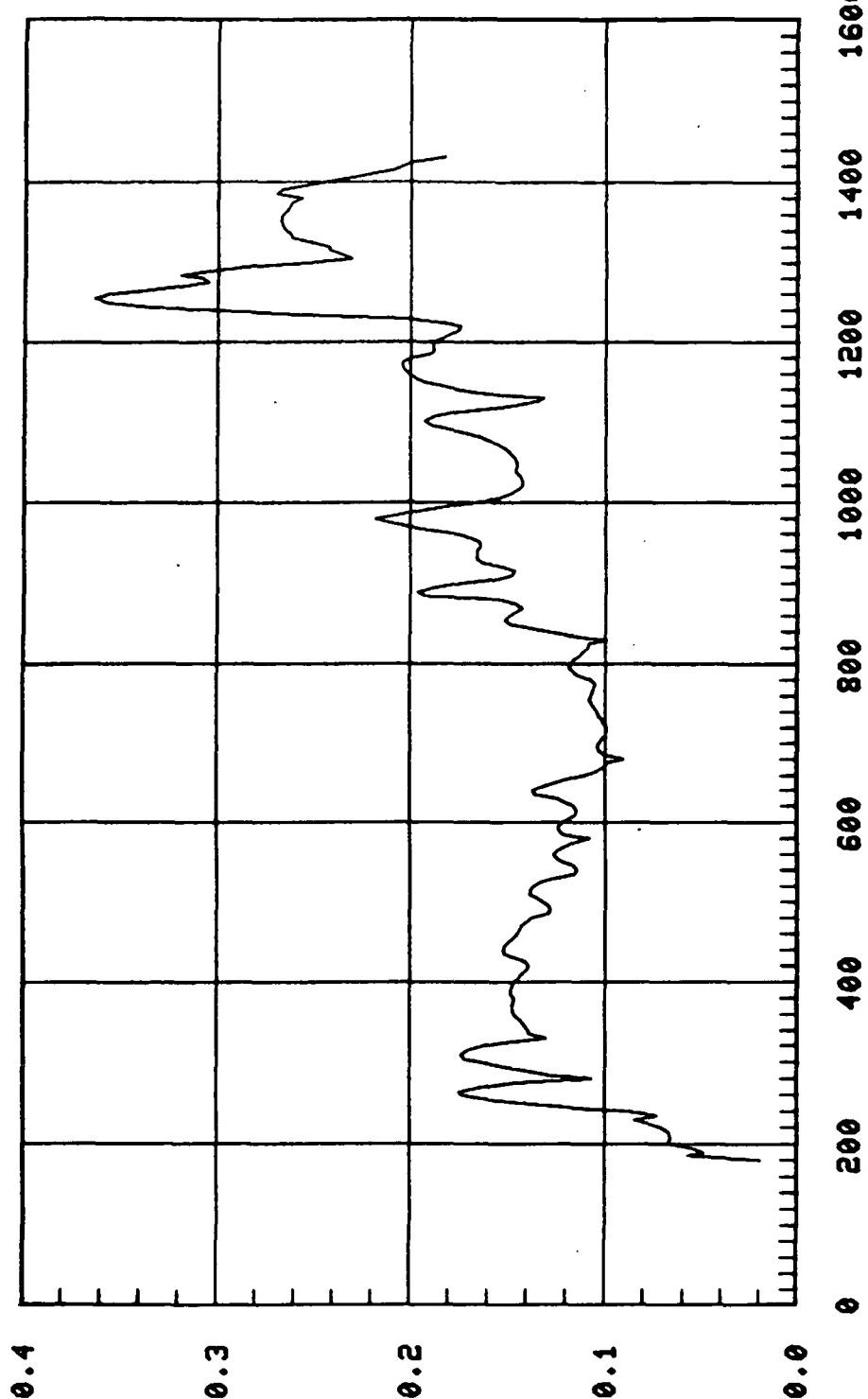
U07T9244A



01/12/84

STS-5 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

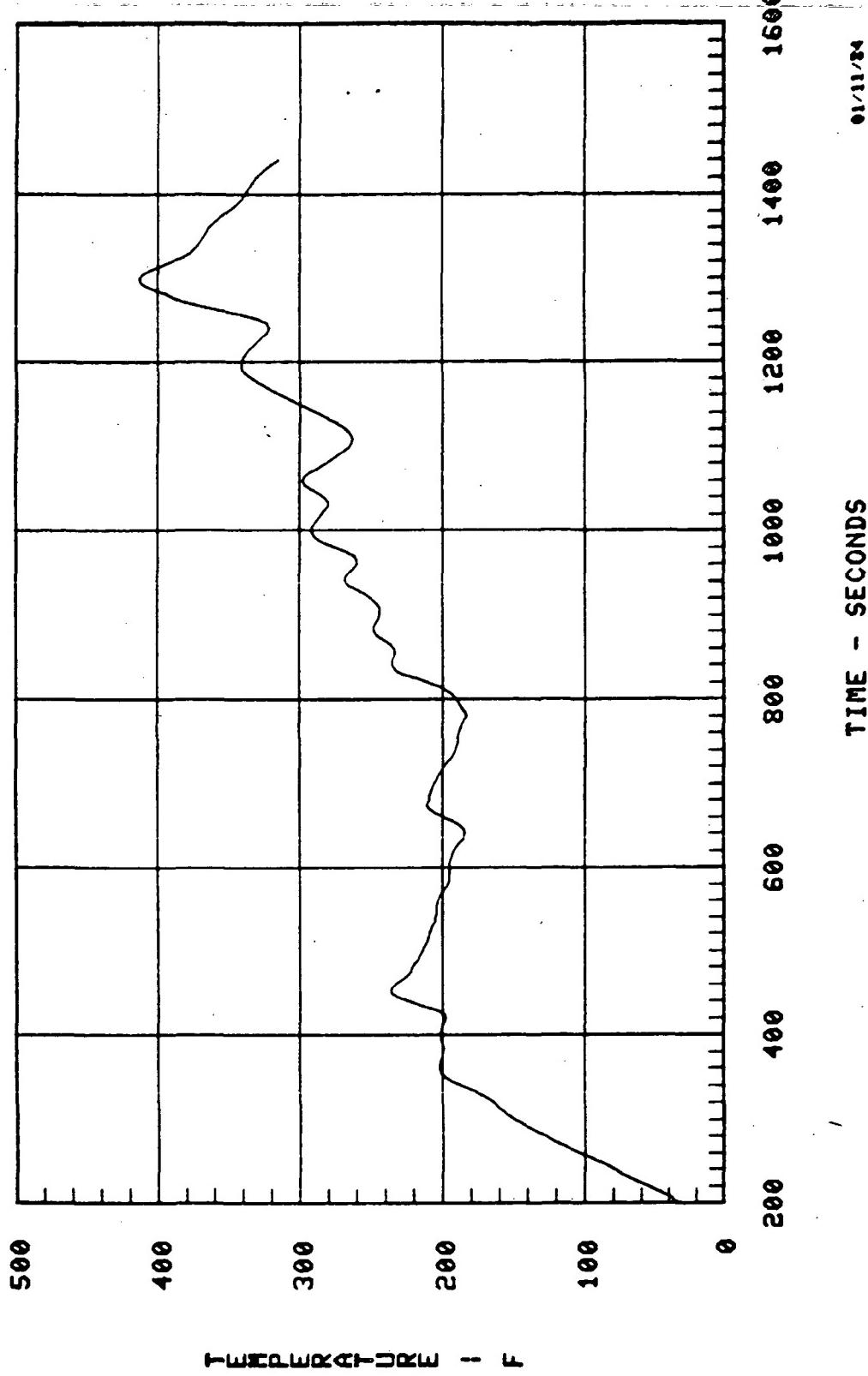
00773244A



DATA - 200 400 600 800 1000 1200 1400 1600

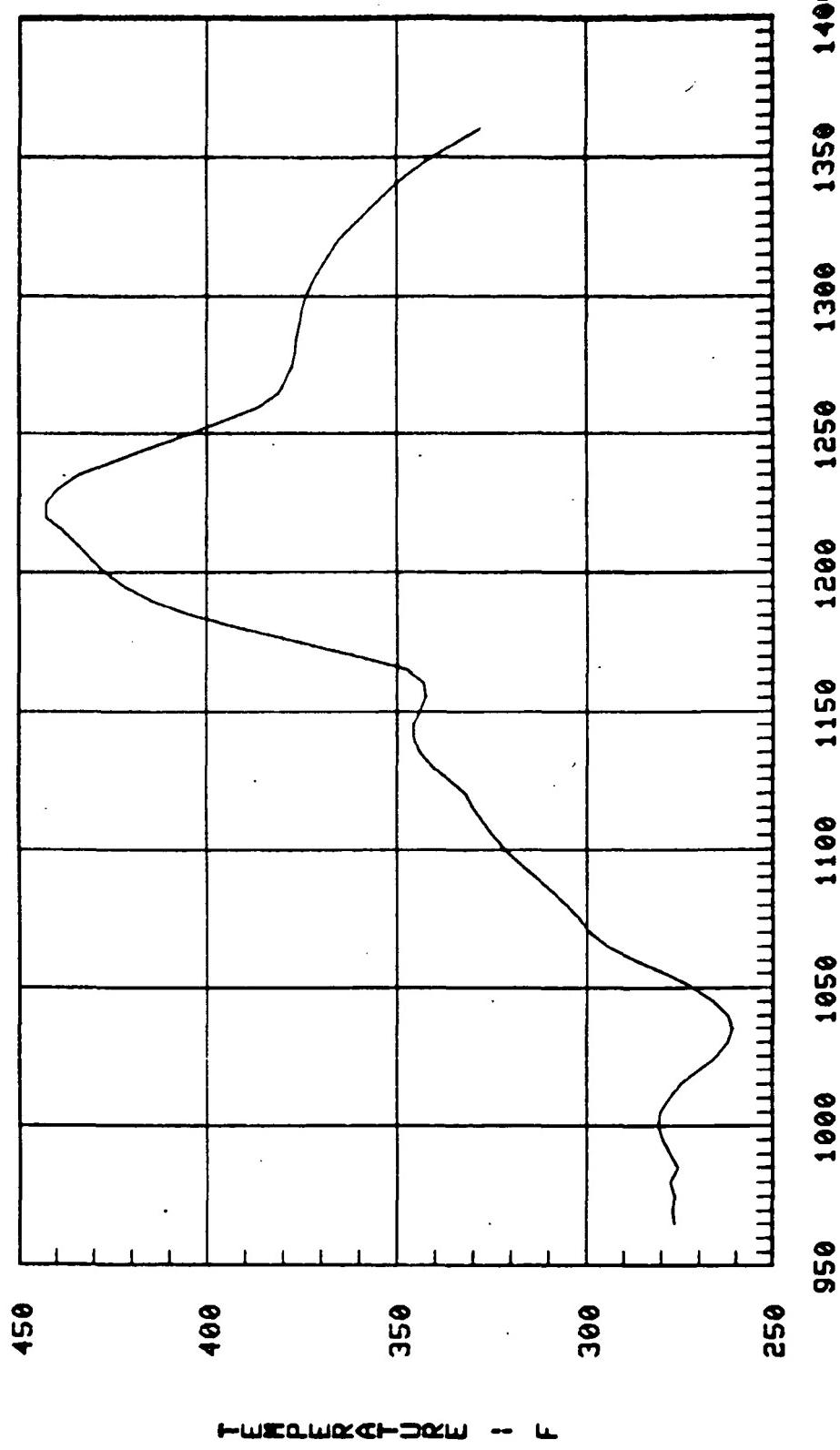
STS-3 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

U8779244A



STS-4 (107 FT LENGTH SIDE FUS X/L = 0.90) Z=400

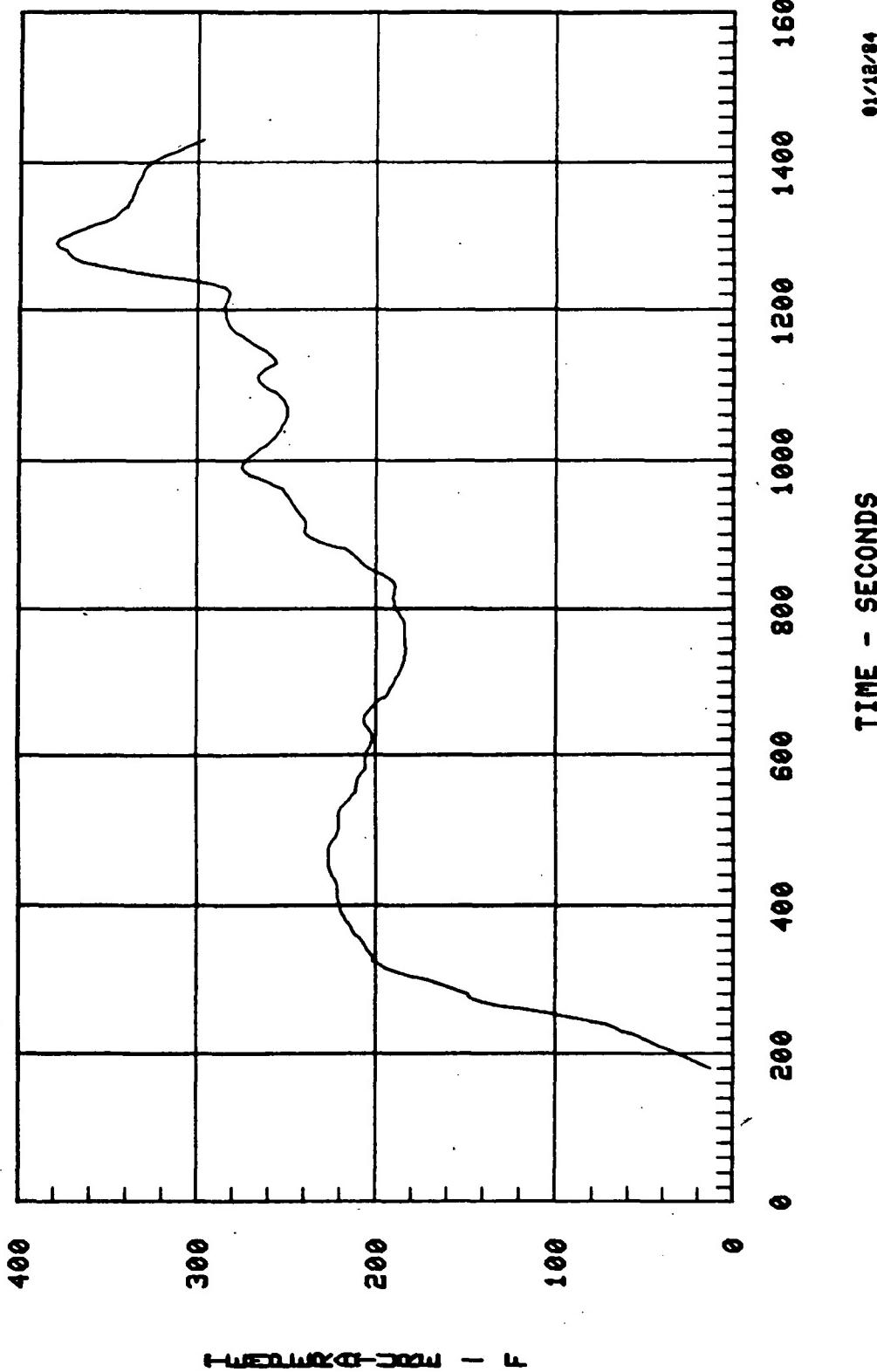
U0779244A



TIMEWALK-CAR -- F

STS-5 (107 FT LENGTH SIDE FUS X/L=0.90) Z=400

U07T9244A

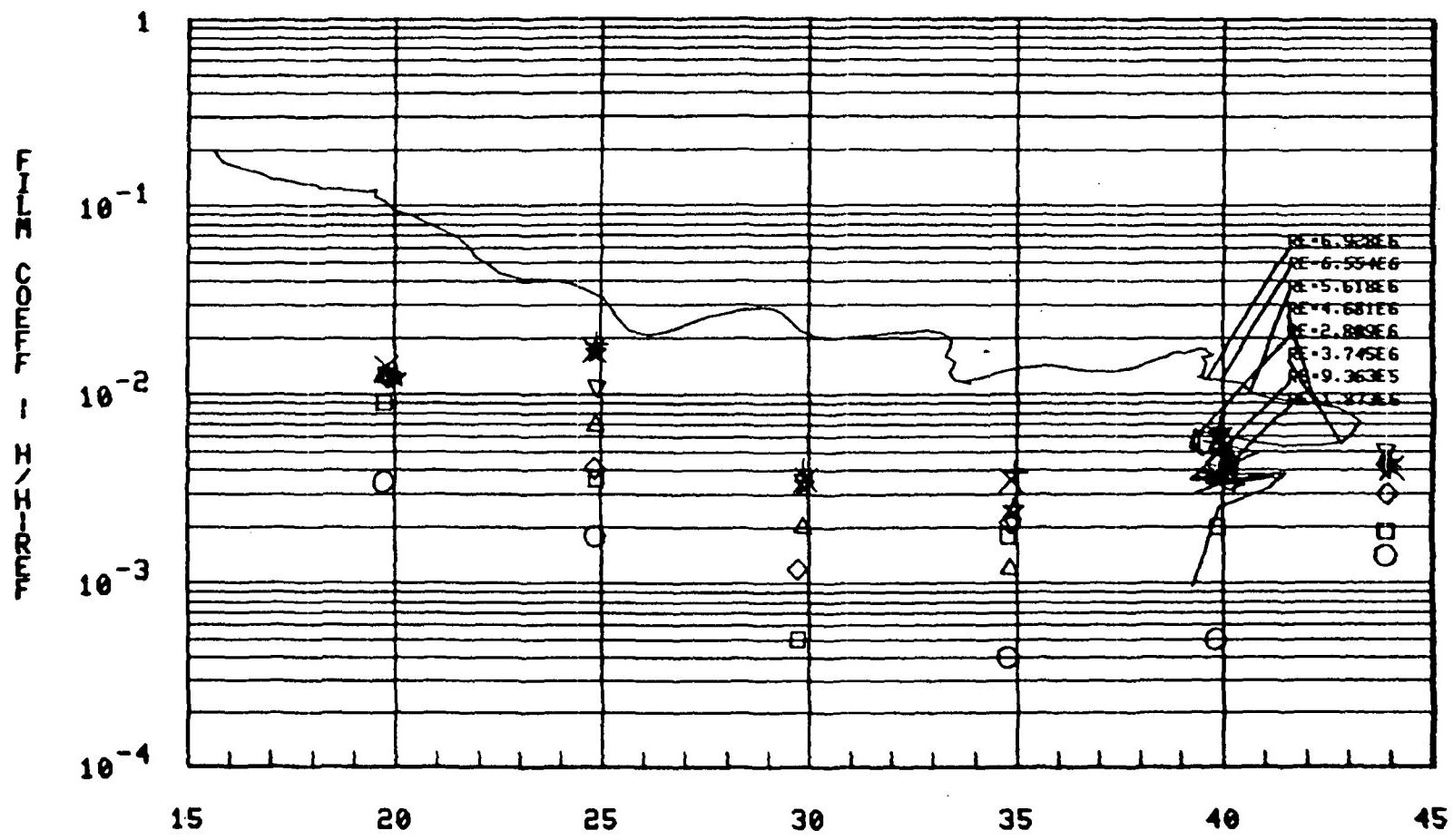


STS-3 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9247A/H-REF 200-1440 SEC

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1B-361

ANGLE-OF-ATTACK - DEG

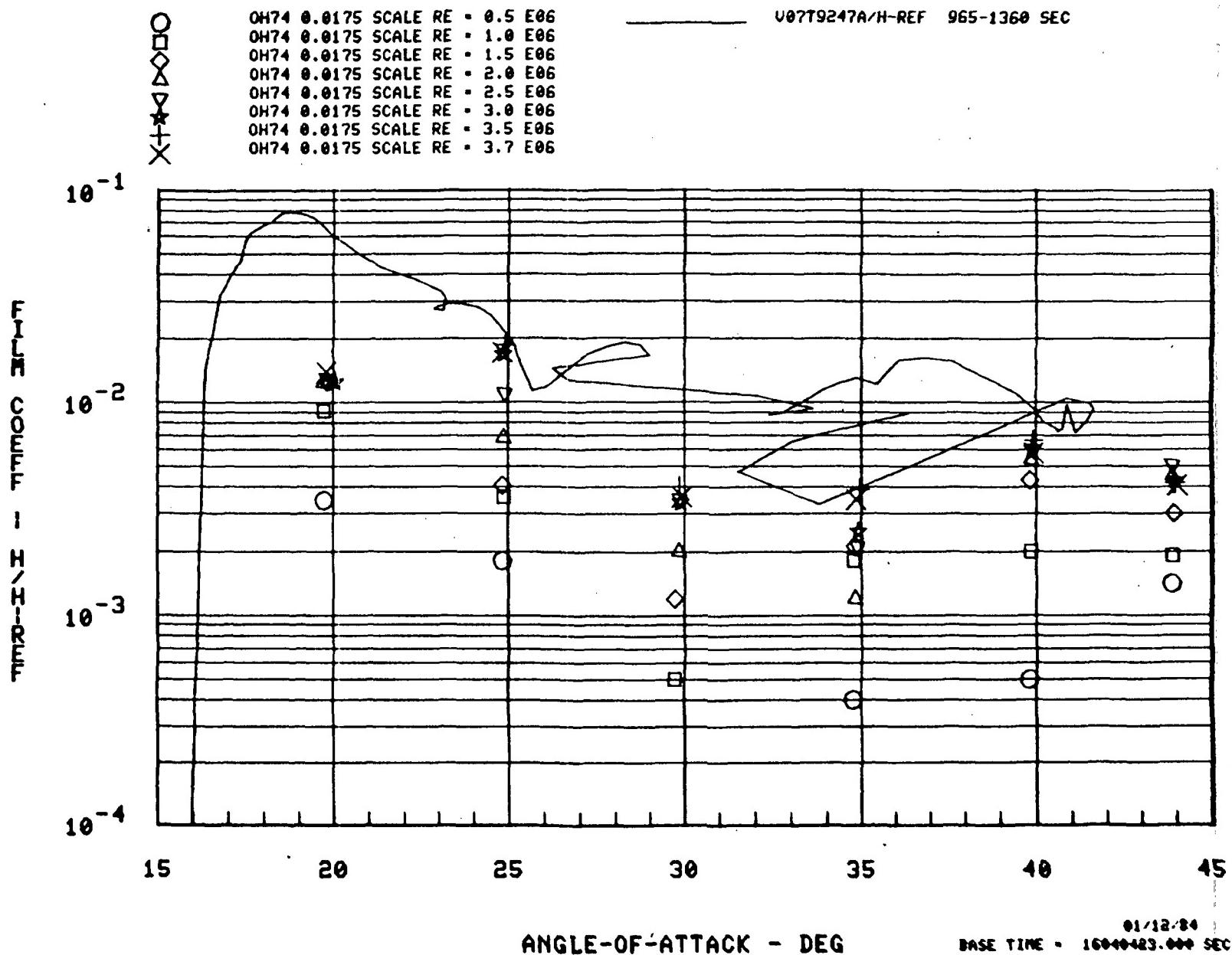
01/11/84

BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9247A/H-REF 965-1360 SEC



B-362

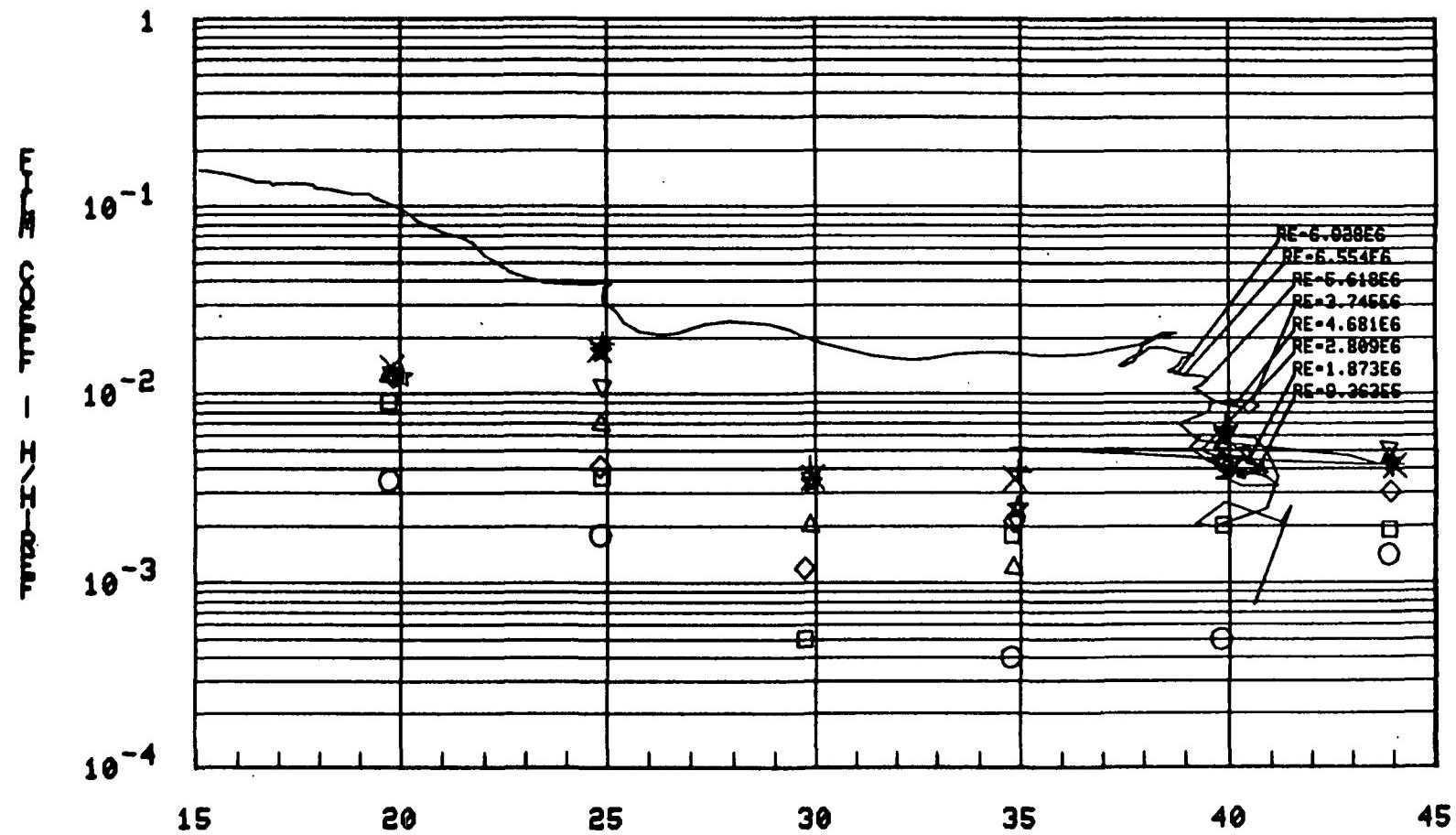
01/12/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9247A/H-REF 150-1430 SEC

O □ ◇ ▷ * X



B-363

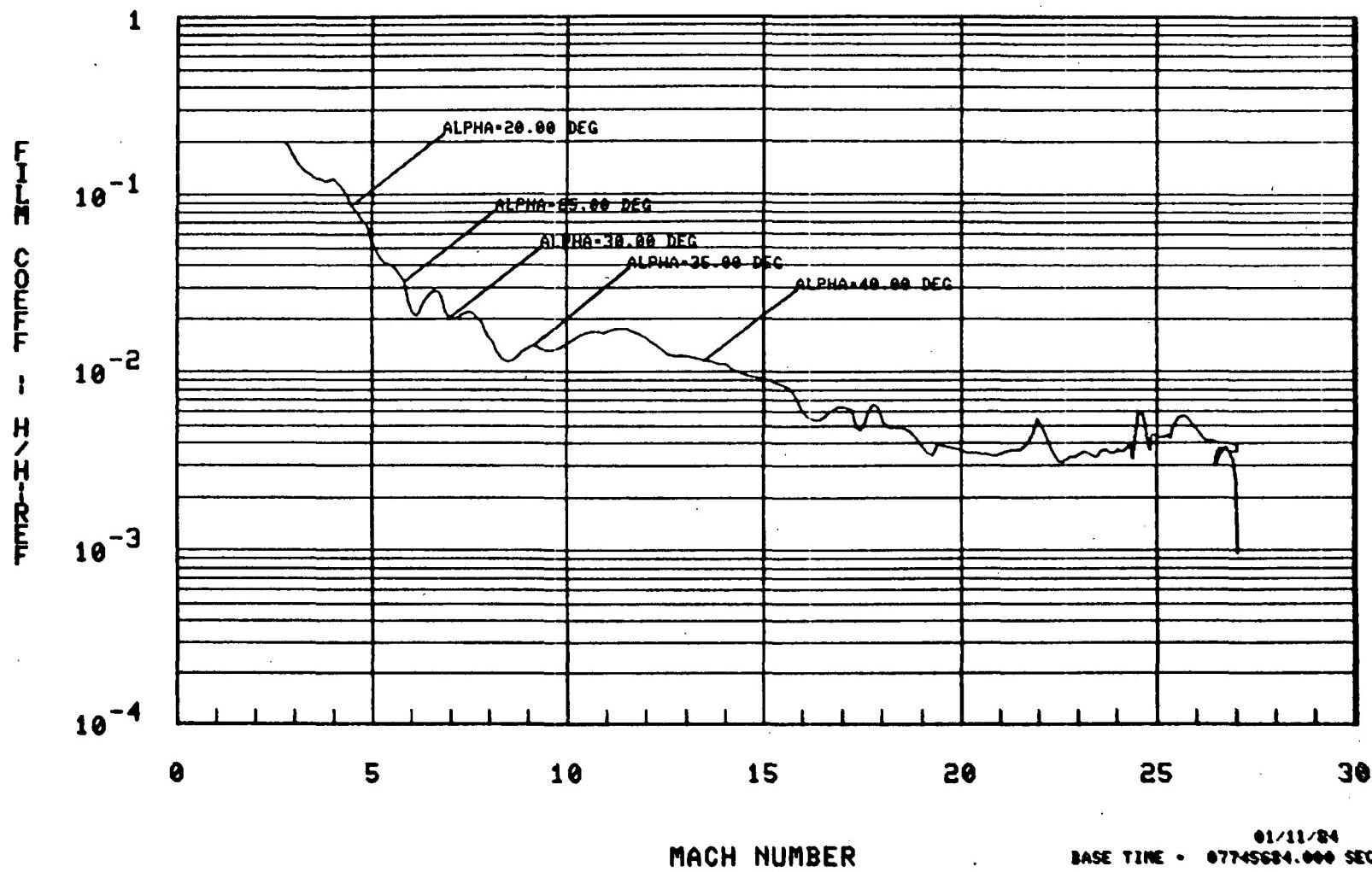
ANGLE-OF-ATTACK - DEG

01/18/84

BASE TIME • 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

U07T9247A/H-REF 200-1440 SEC



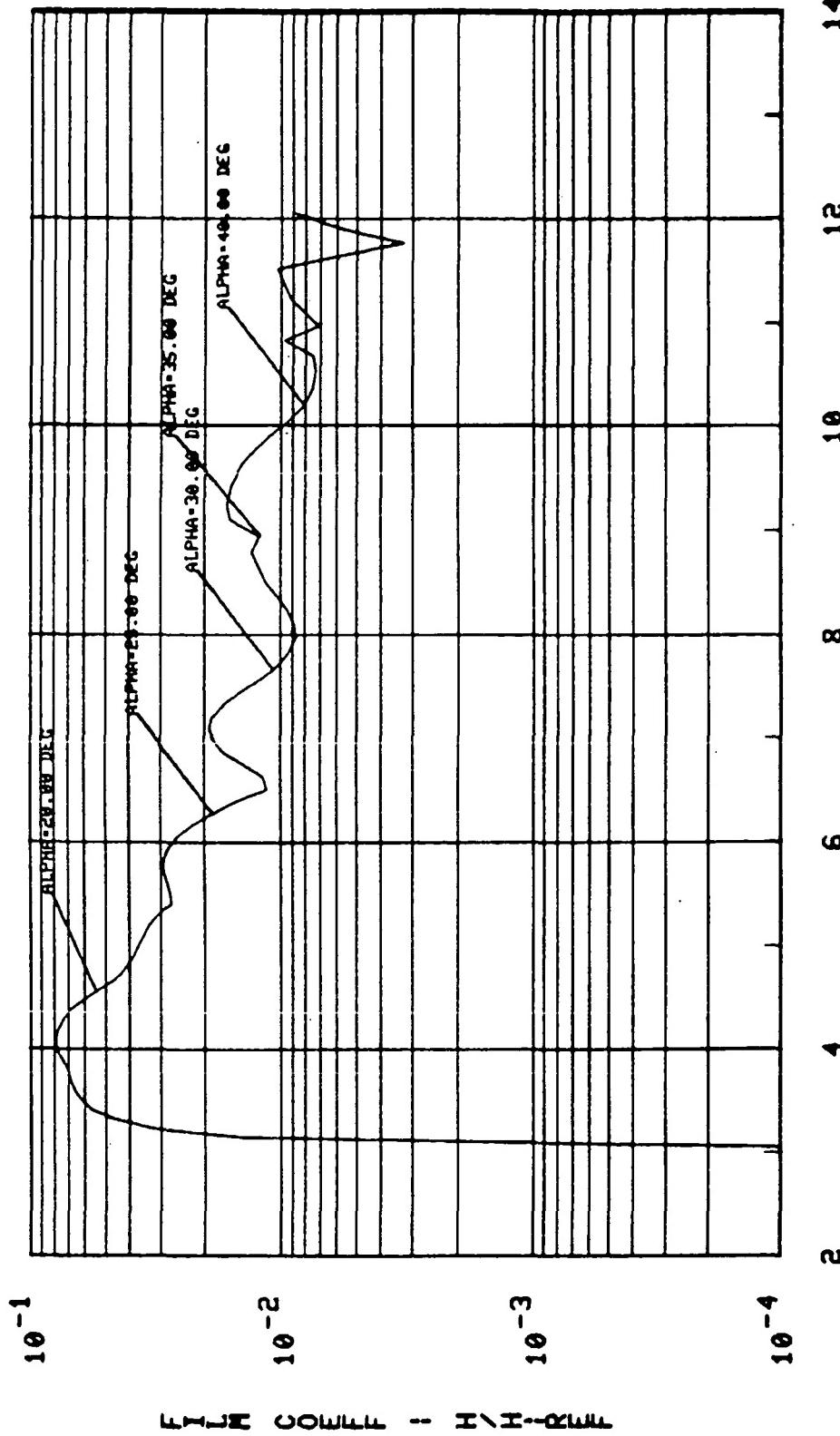
B-364

MACH NUMBER

01/11/84
BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

U8779247A/H-REF 965-1360 SEC

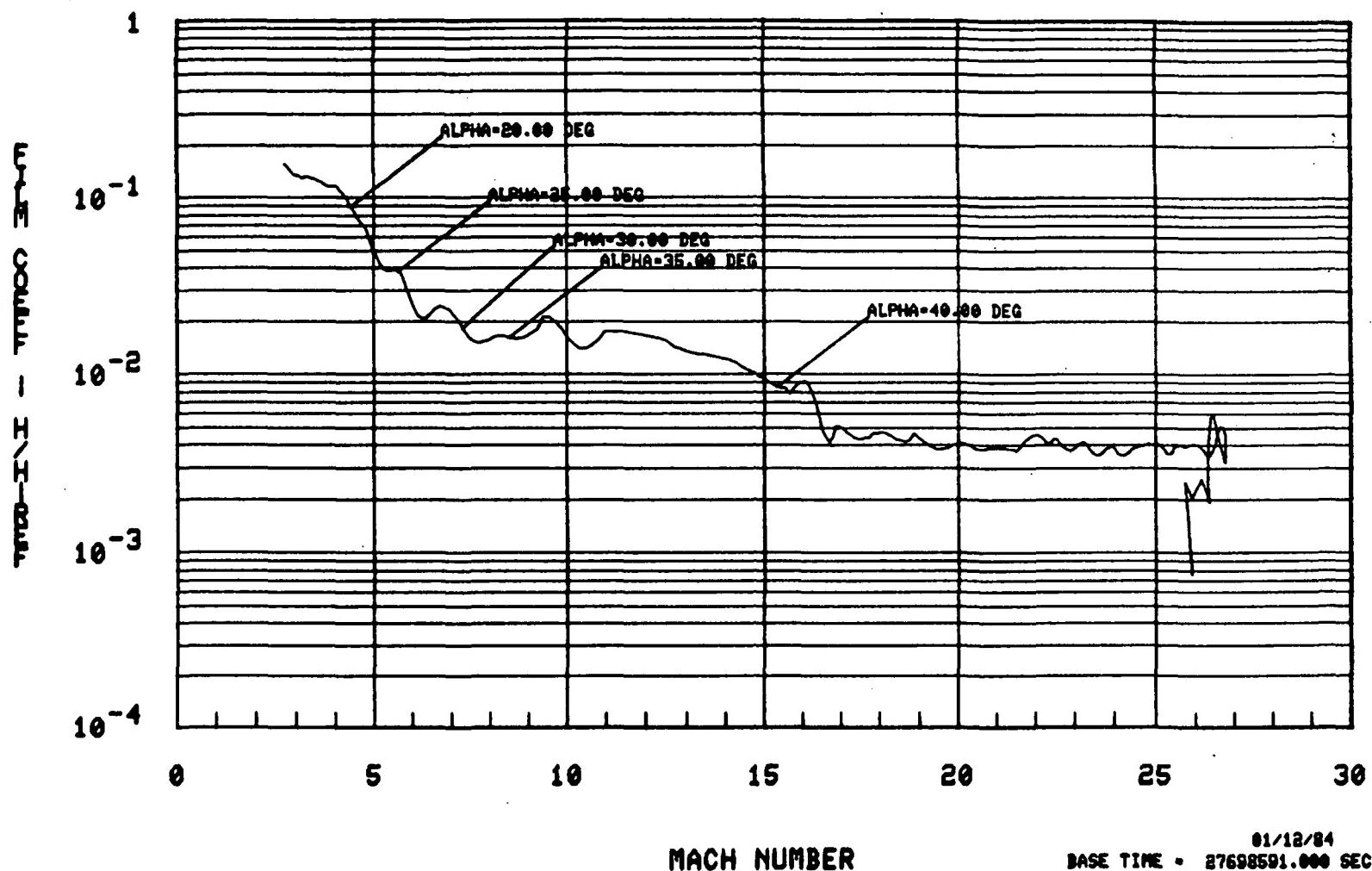


MACH NUMBER

01/12/84
BASE TIME • 16044-03.000 SEC.

STS-5 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

VE7T9247A/H-REF 150-1430 SEC



B-366

01/12/84
BASE TIME = 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

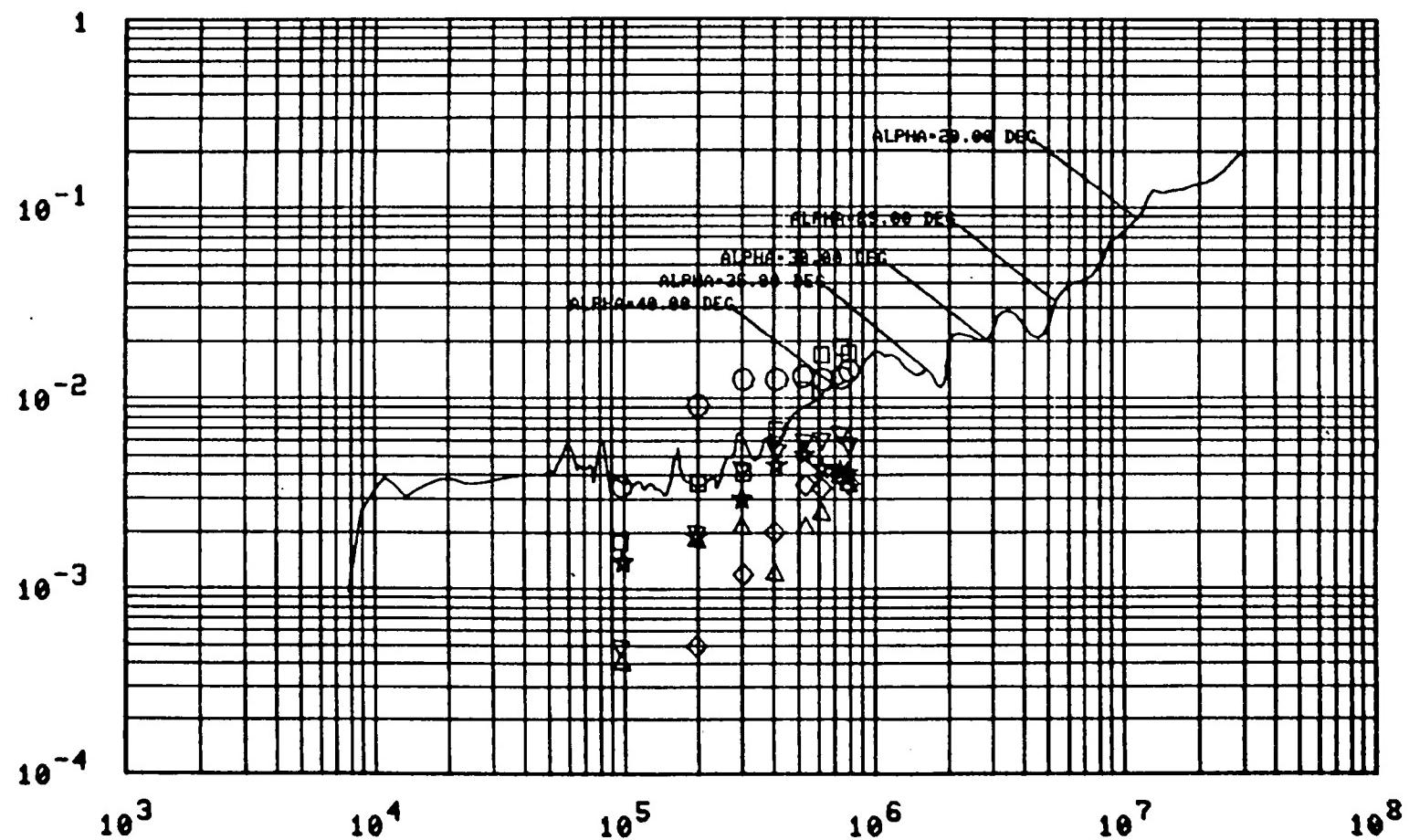
OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9247A/H-REF 200-1440 SEC

○ □ ◇ △ ▽ ★

FILE COFF : H\H-REF

B-367



REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.000 SEC.

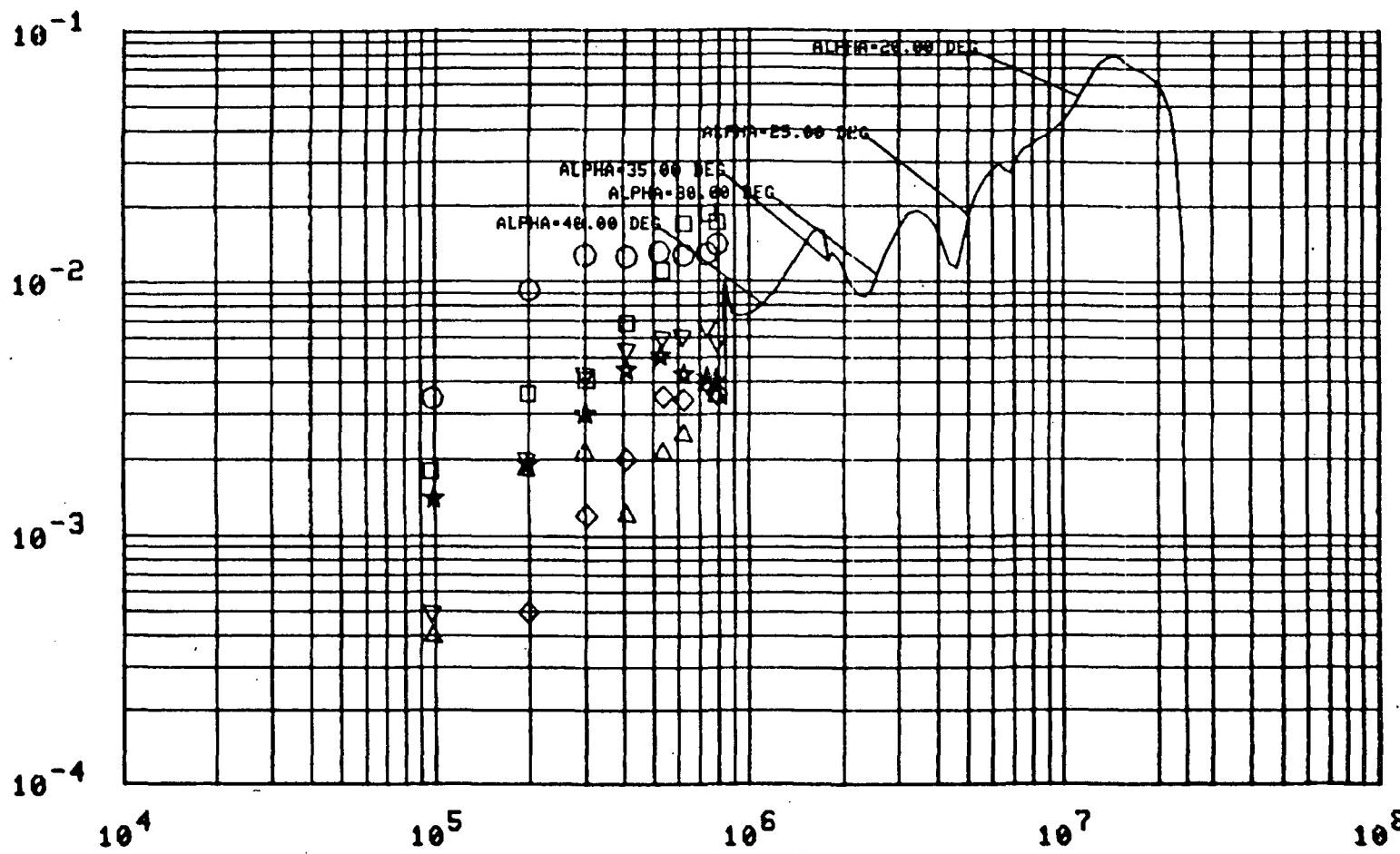
STS-4 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

O ◇ ▲ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9247A/H-REF 965-1368 SEC

LINEAR SCALING -- H/H-REF



B-368

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME - 16040423.000 SEC.

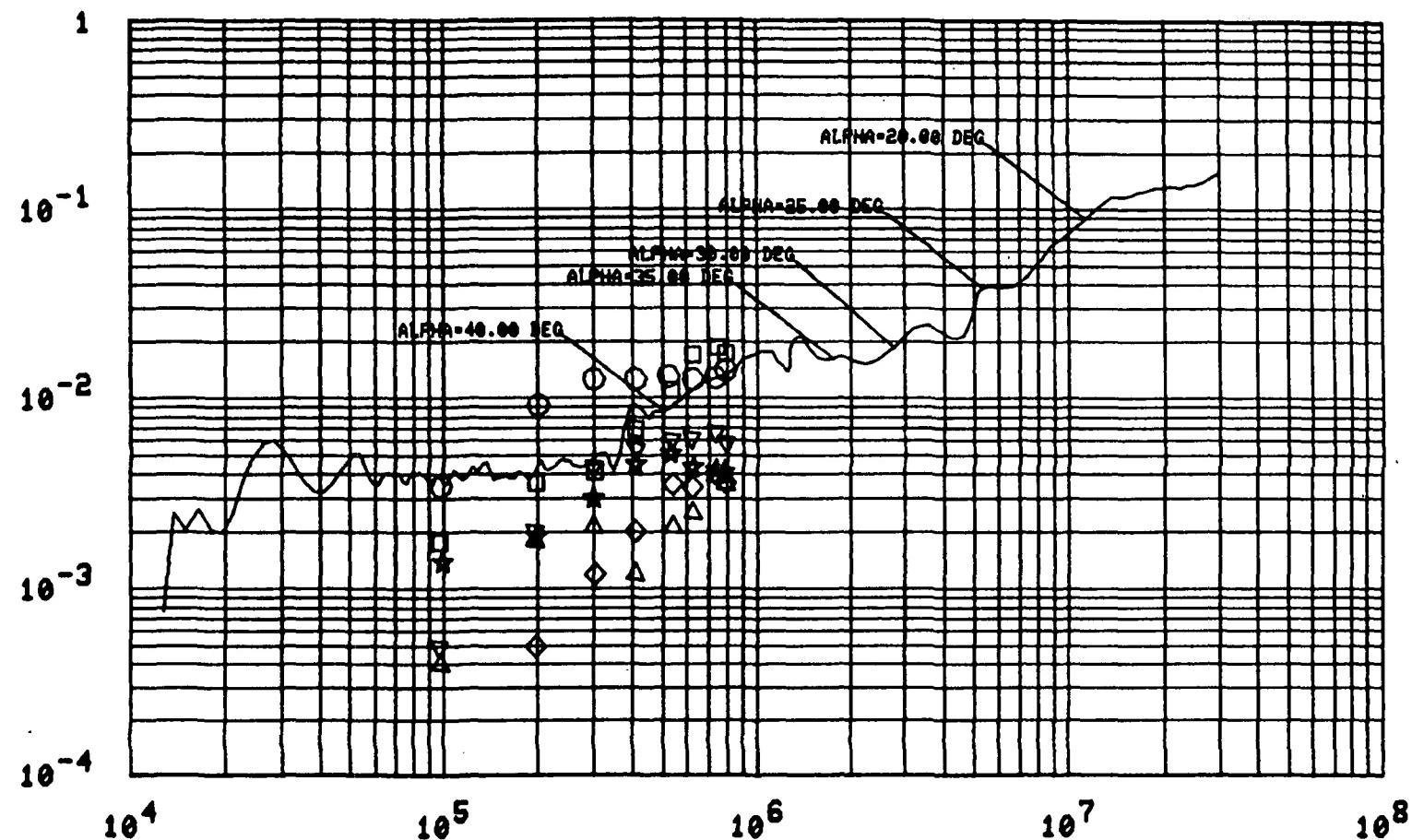
STS-5 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9247A/H-REF 150-1430 SEC

ORIGIN

B-369



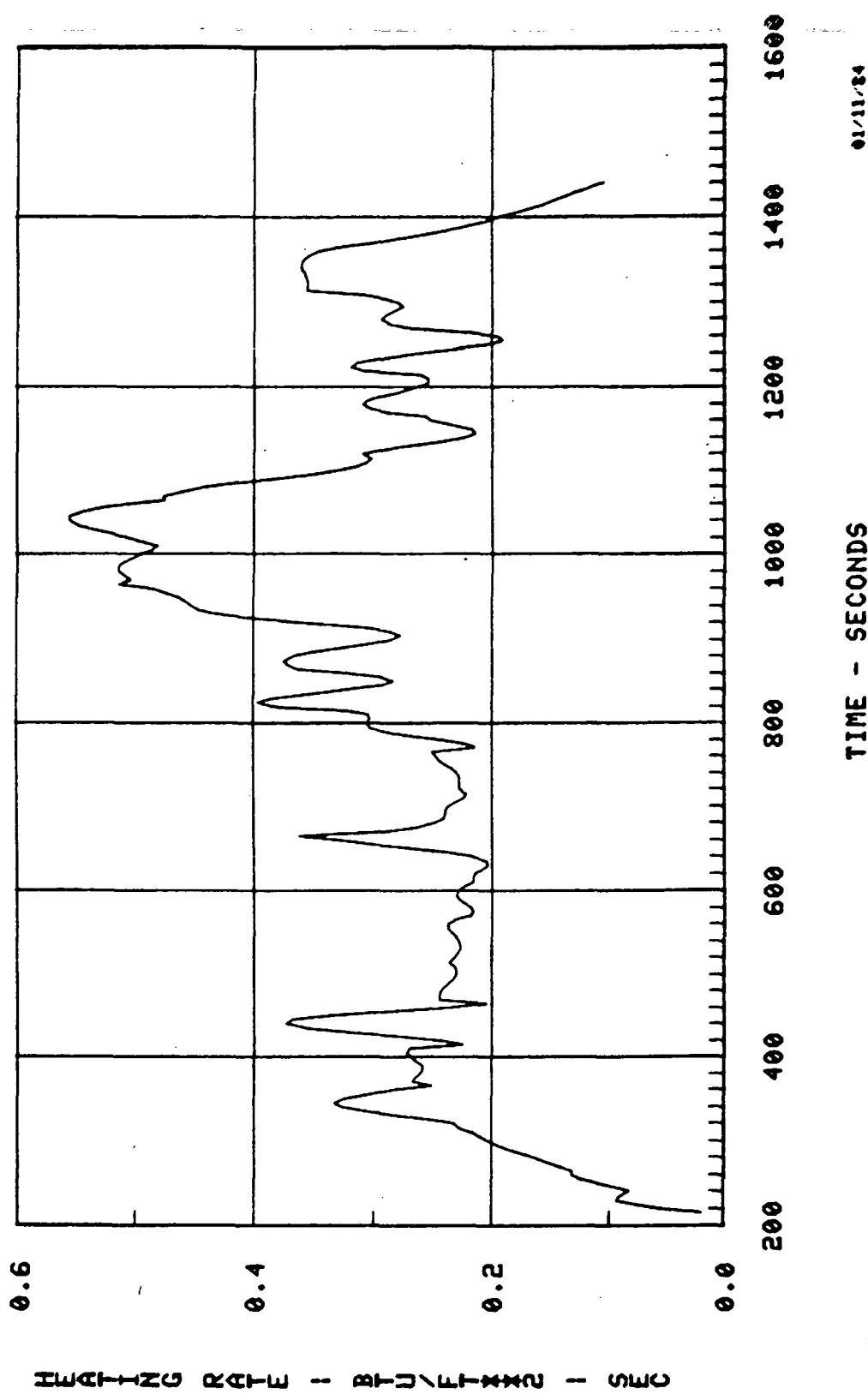
REYNOLDS NUMBER (NS)

01/12/84

BASE TIME = 27698591.000 SEC.

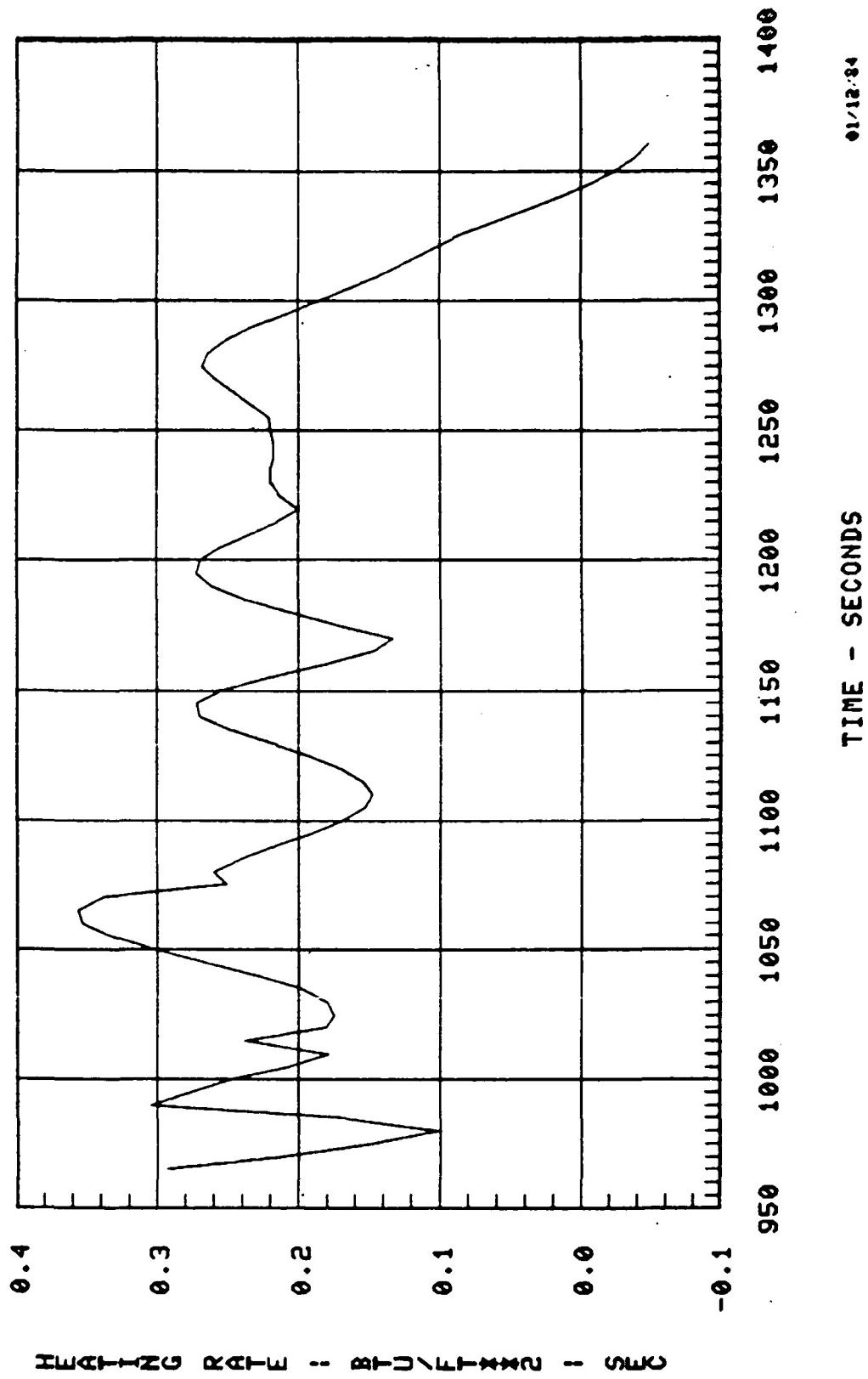
STS-3 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

U97T9247A



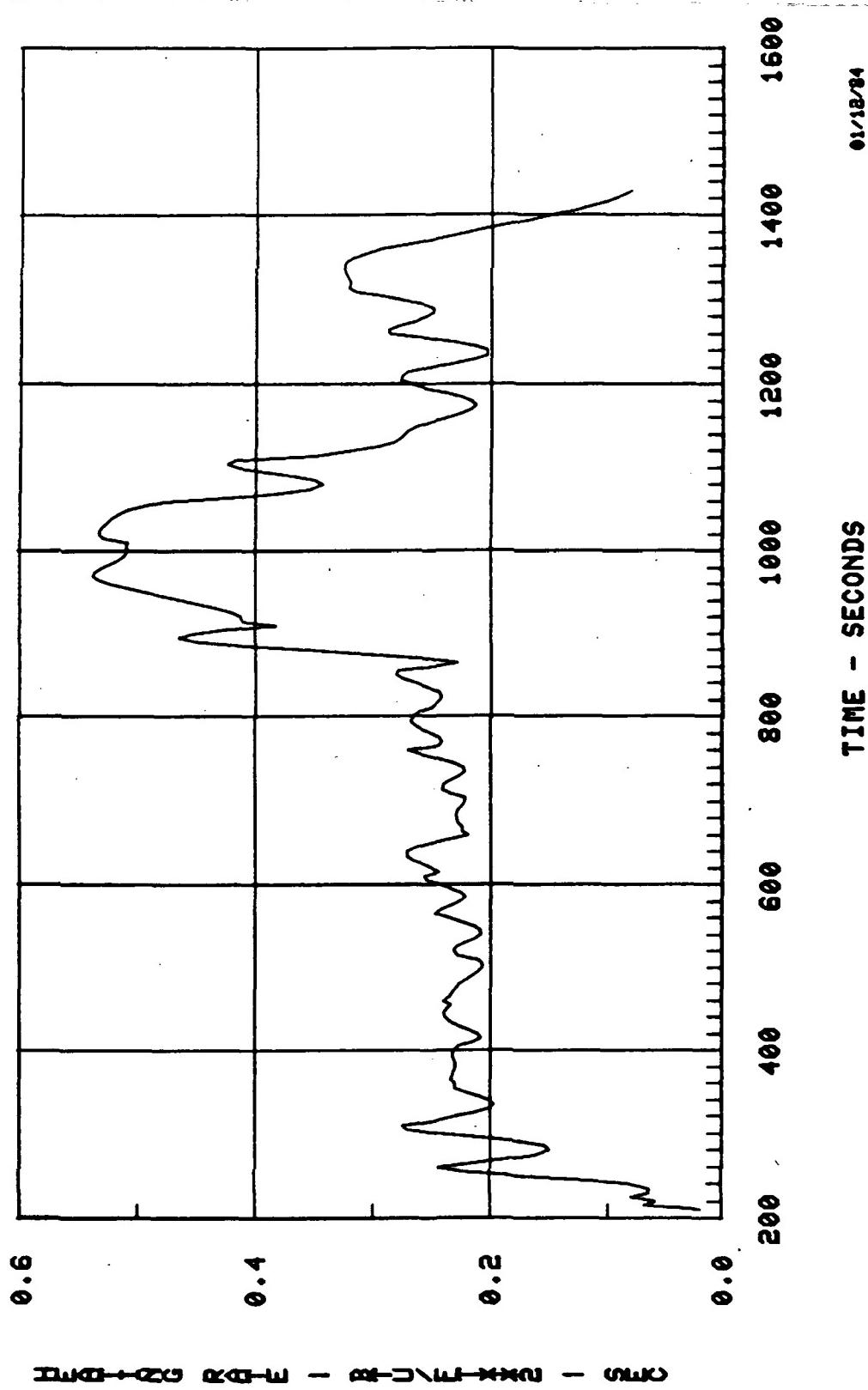
STS-4 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

W0779247A



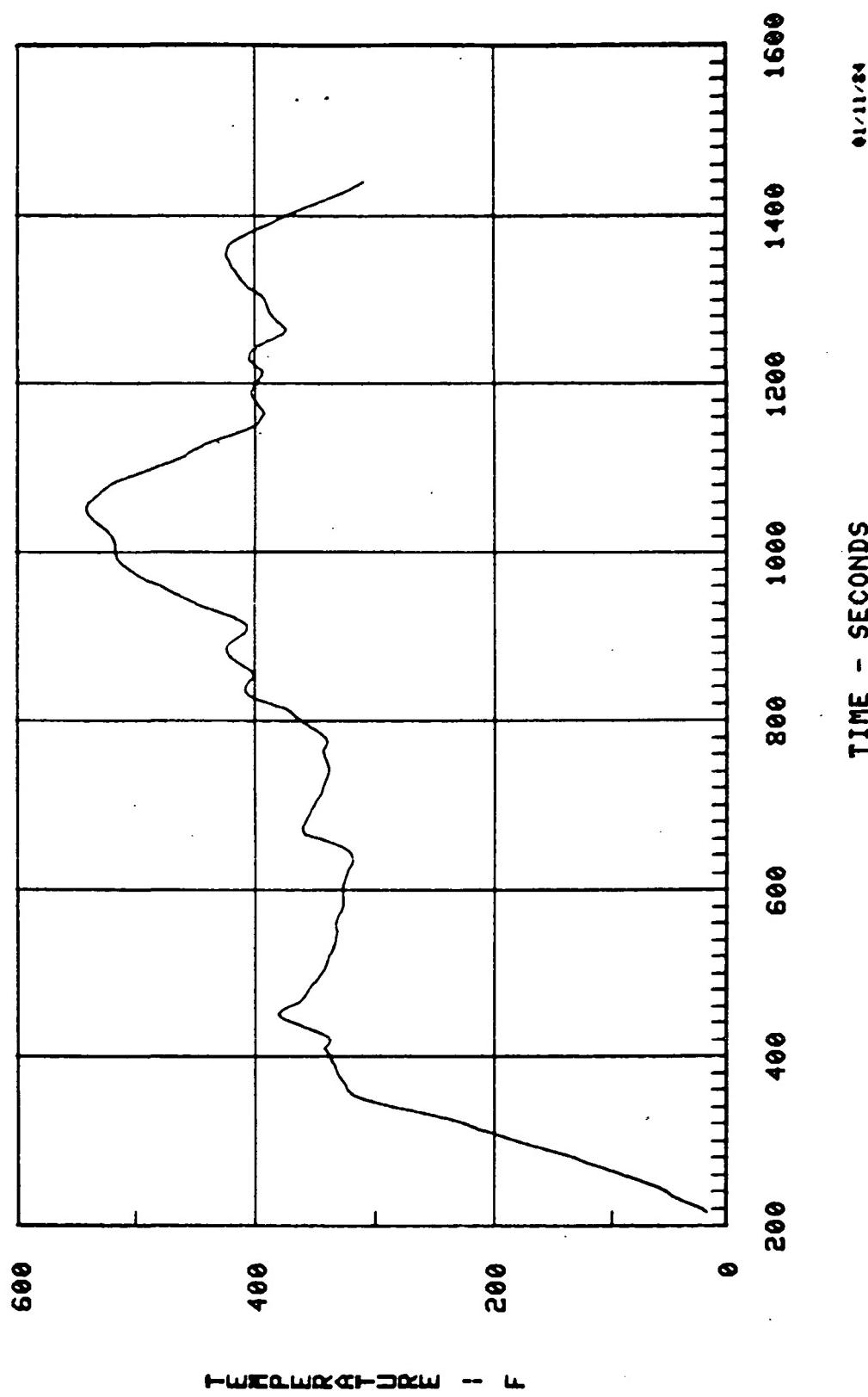
STS-5 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

0779247A



STS-3 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

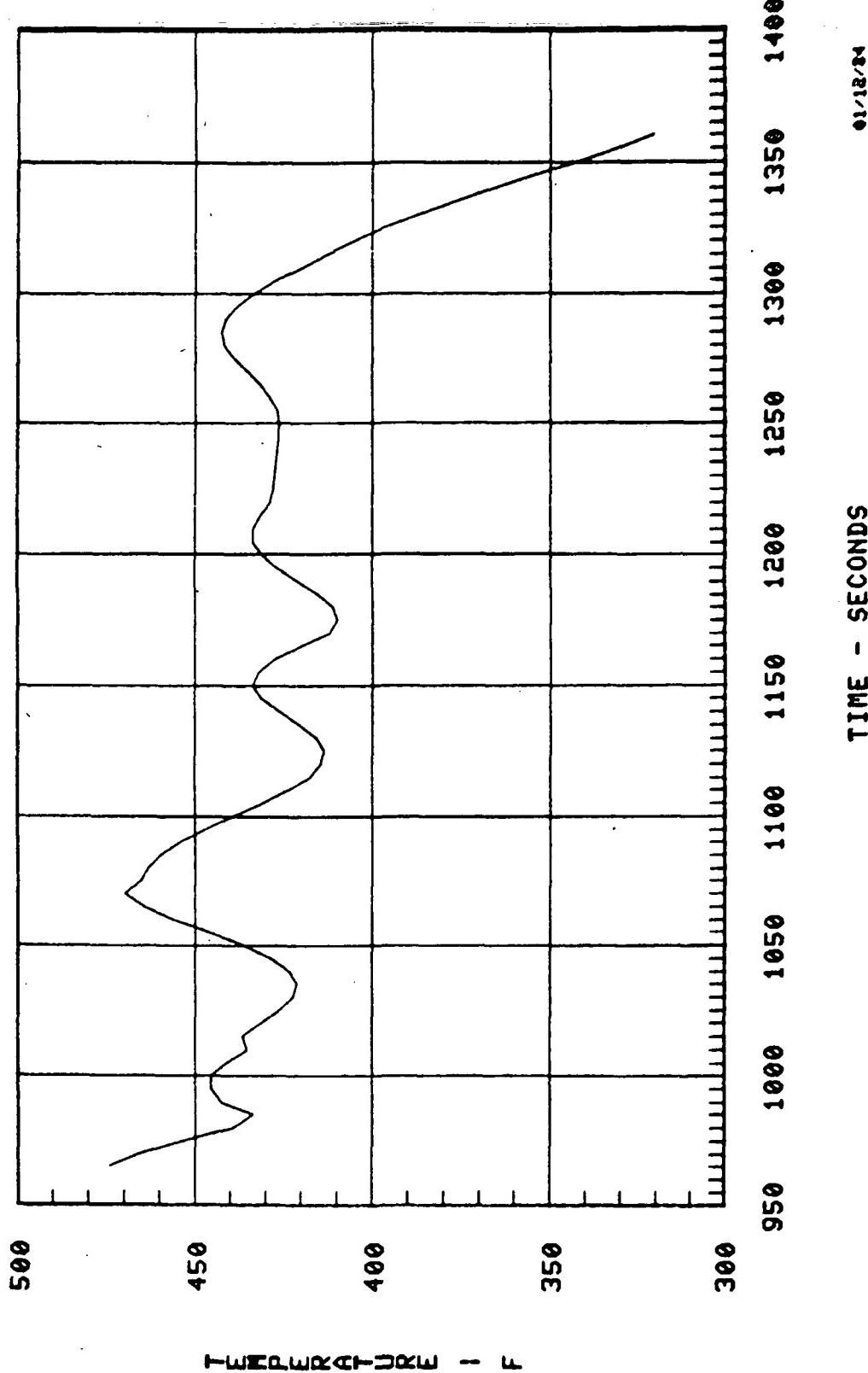
U0779247A



TMICROGRAPHIC - F

STS-4 (107 FT LENGTH SIDE FUS X/L=0.98) Z=400

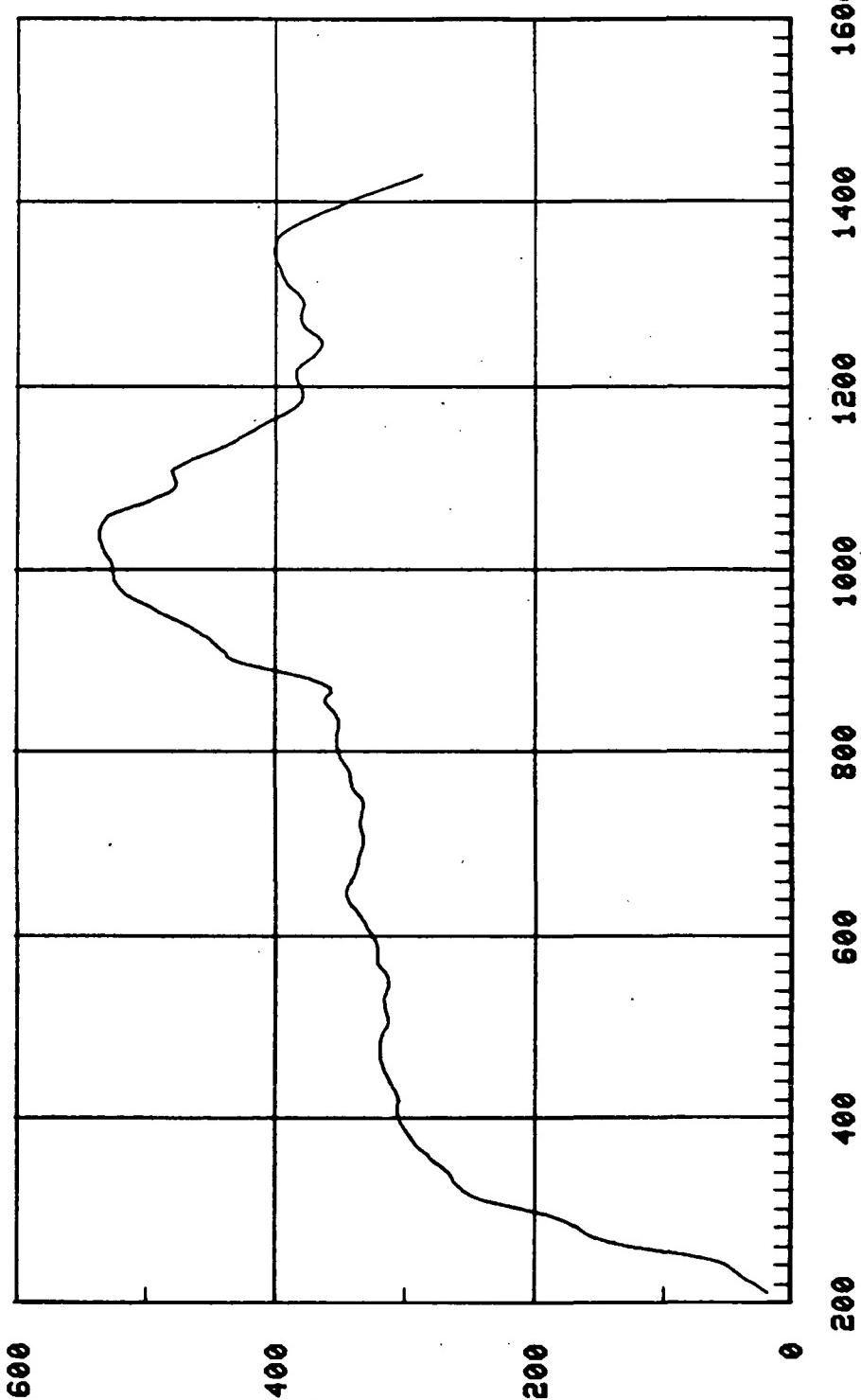
U0779247A



TEMPERATURE - T

STS-5 (107 FT LENGTH SIDE FUS X/L=0.98) 2-400

4079247A



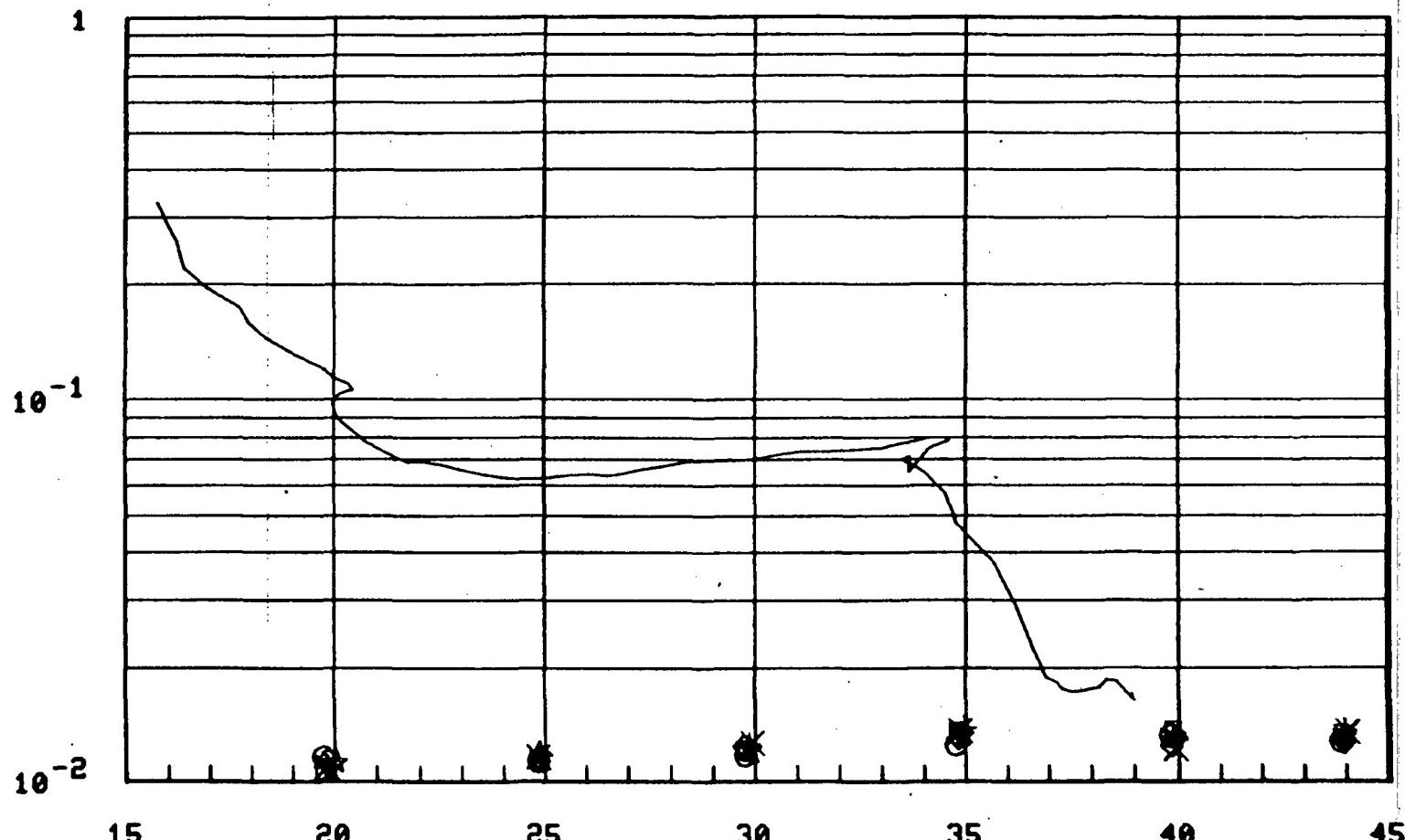
STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U0779910A/H-REF 1065-1500 SEC

FRICTION COEFFICIENT - H\HORN

B-376



ANGLE-OF-ATTACK - DEG

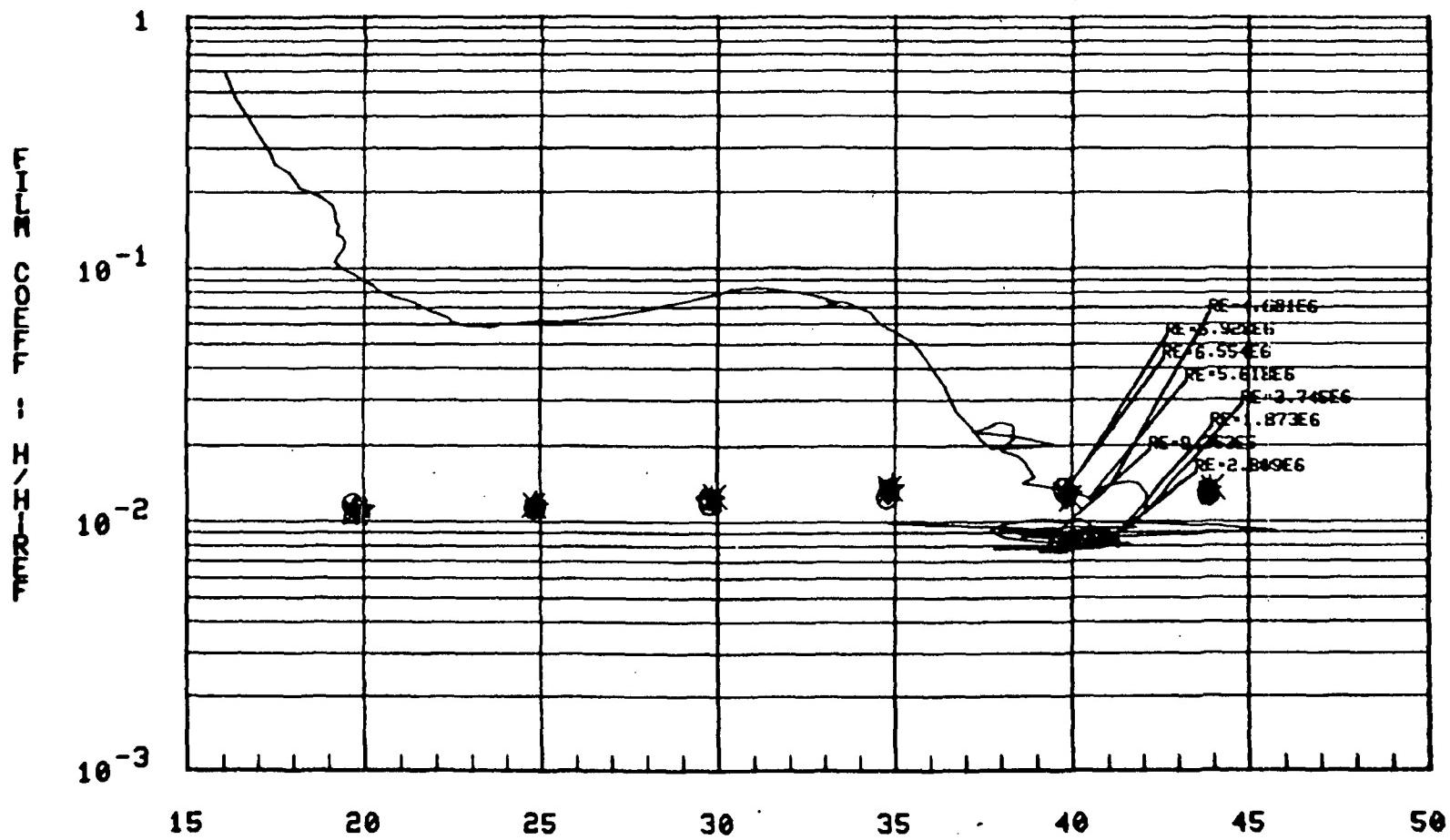
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

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OH74 0.0175 SCALE RE - 0.5 E06
 OH74 0.0175 SCALE RE - 1.0 E06
 OH74 0.0175 SCALE RE - 1.5 E06
 OH74 0.0175 SCALE RE - 2.0 E06
 OH74 0.0175 SCALE RE - 2.5 E06
 OH74 0.0175 SCALE RE - 3.0 E06
 OH74 0.0175 SCALE RE - 3.5 E06
 OH74 0.0175 SCALE RE - 3.7 E06

U0779910A/H-REF 200-1530 SEC



B-377

ANGLE-OF-ATTACK - DEG

01/11/84
 BASE TIME • 87550236.000 SEC.

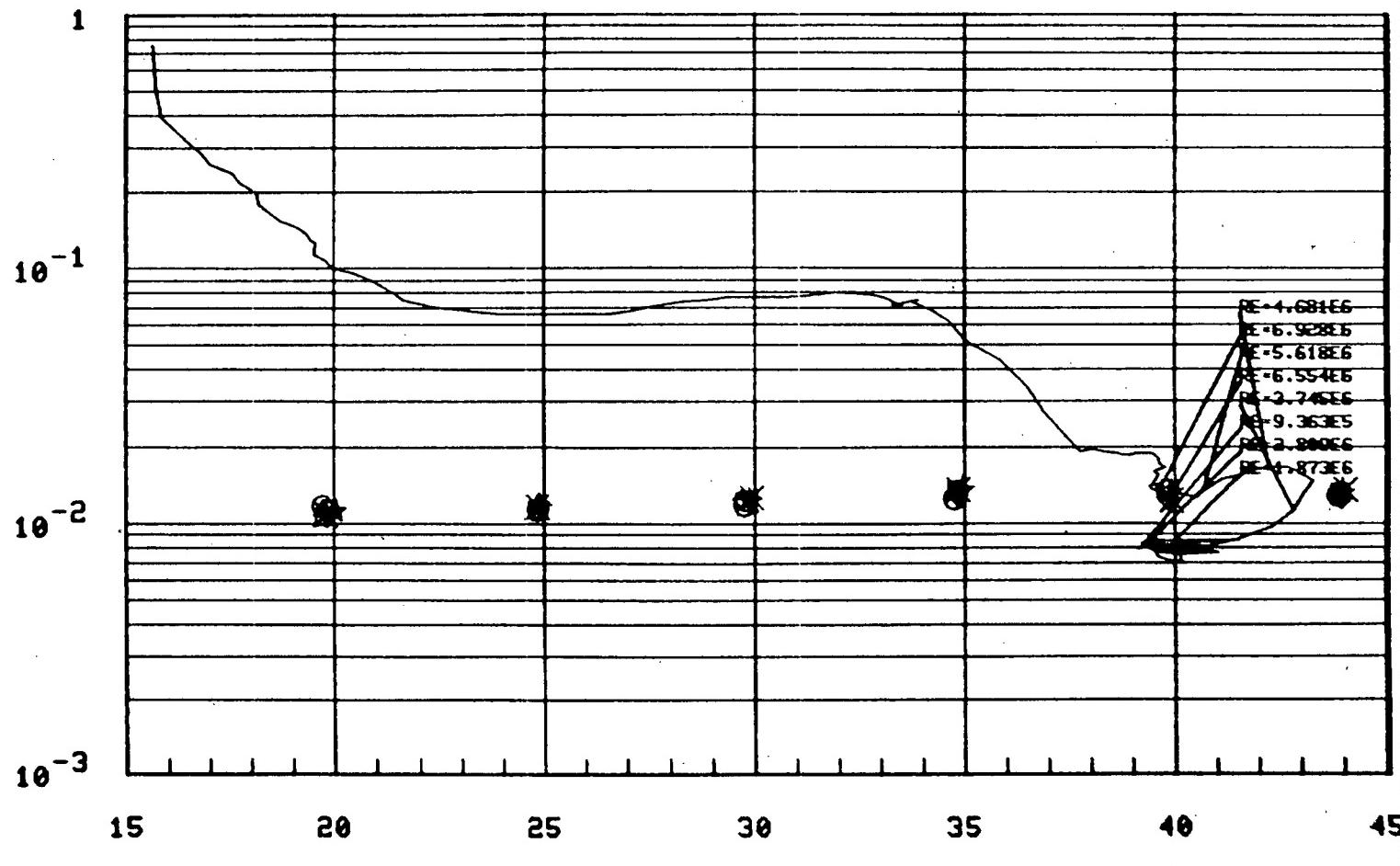
STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

○□◇◆△★+

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9910A/H-REF 200-1440 SEC

LINE SOURCE - H-H-REF



B-378

ANGLE-OF-ATTACK - DEG

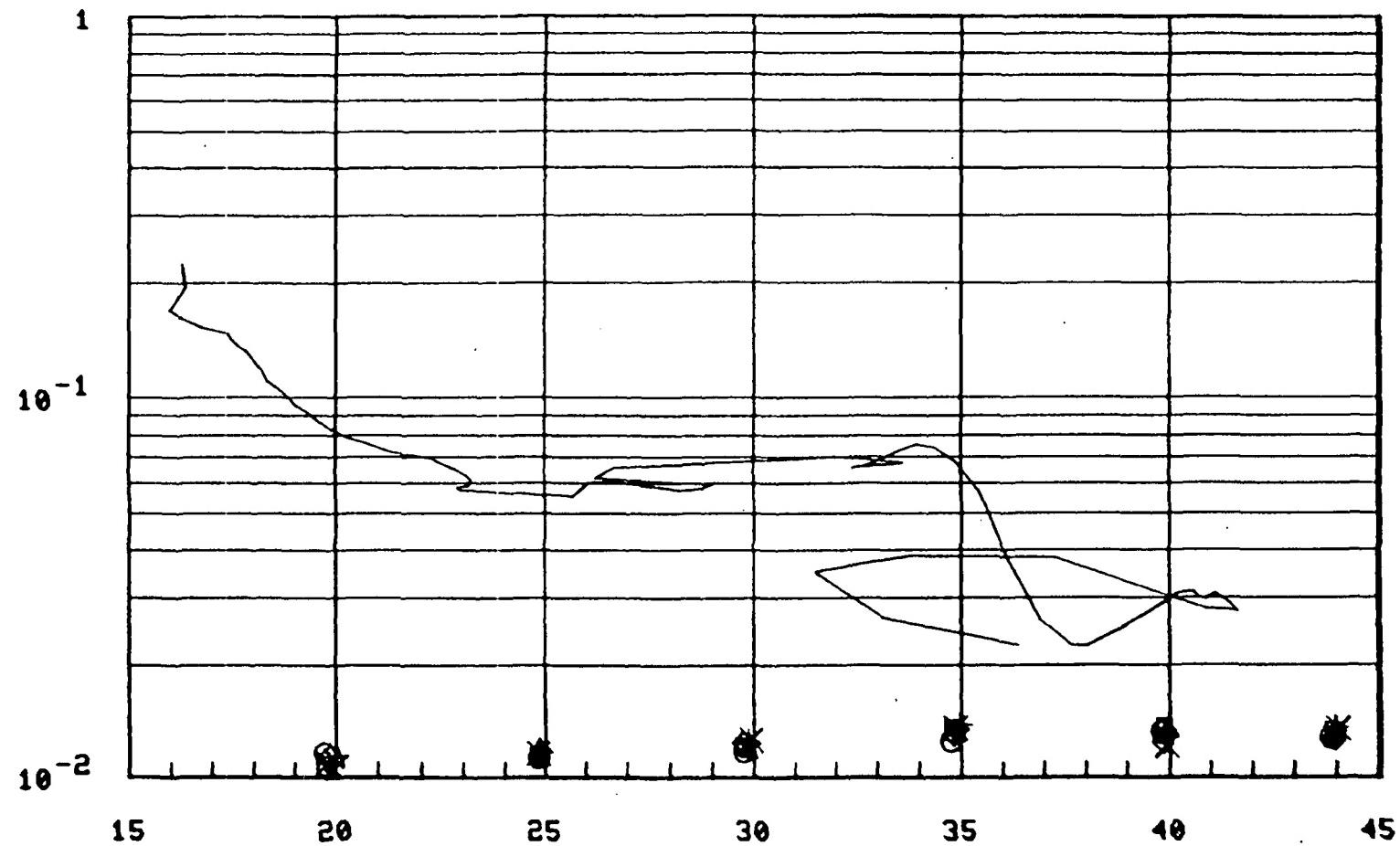
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

V07T9910A/H-REF 965-1360 SEC

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B-379

01/12/84
ANGLE-OF-ATTACK - DEG

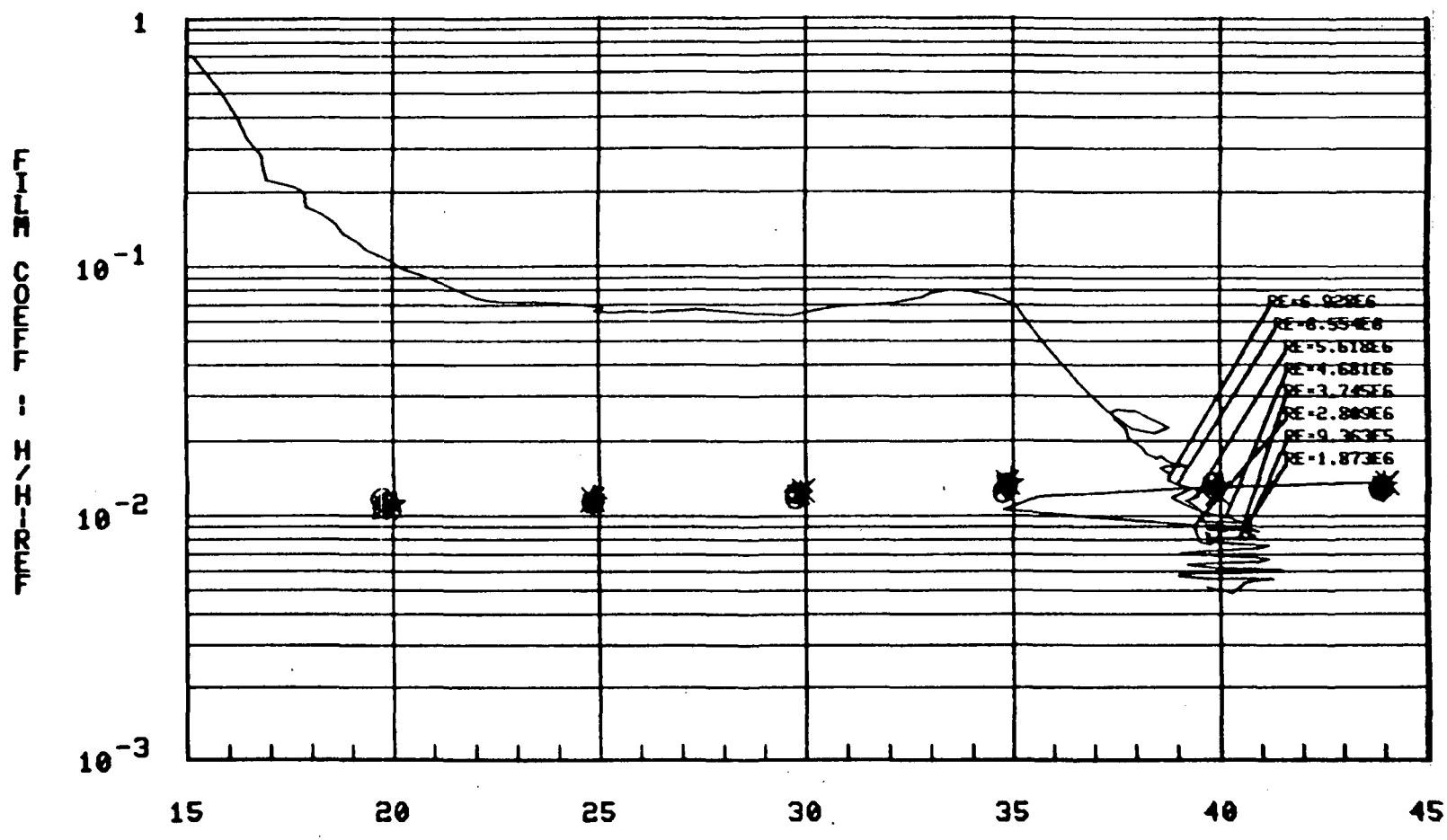
BASE TIME • 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

○□◇△★+

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9910A/H-REF 150-1430 SEC

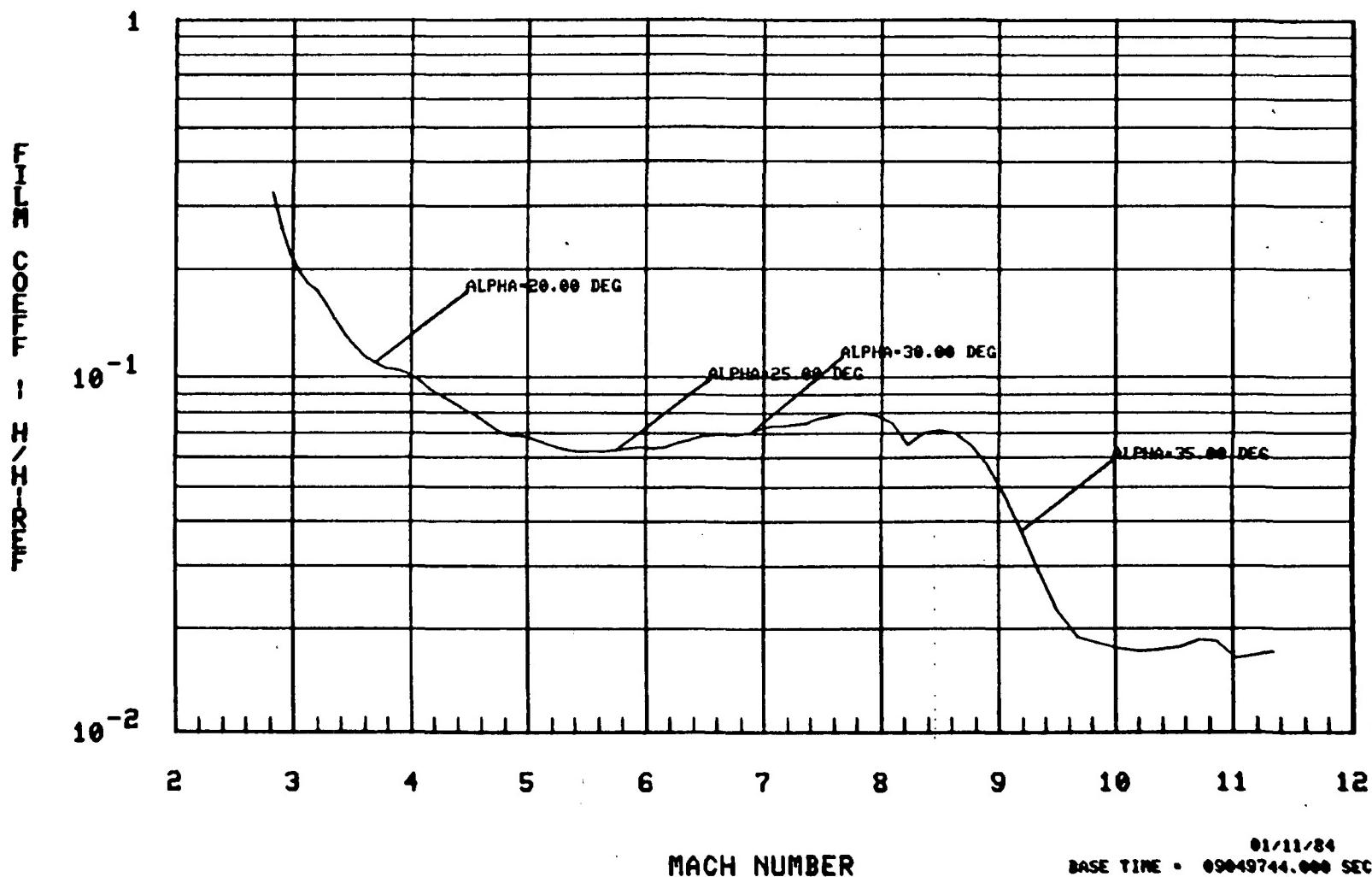


B-380

01/12/84
 BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U07T9910A/H-REF 1065-1500 SEC



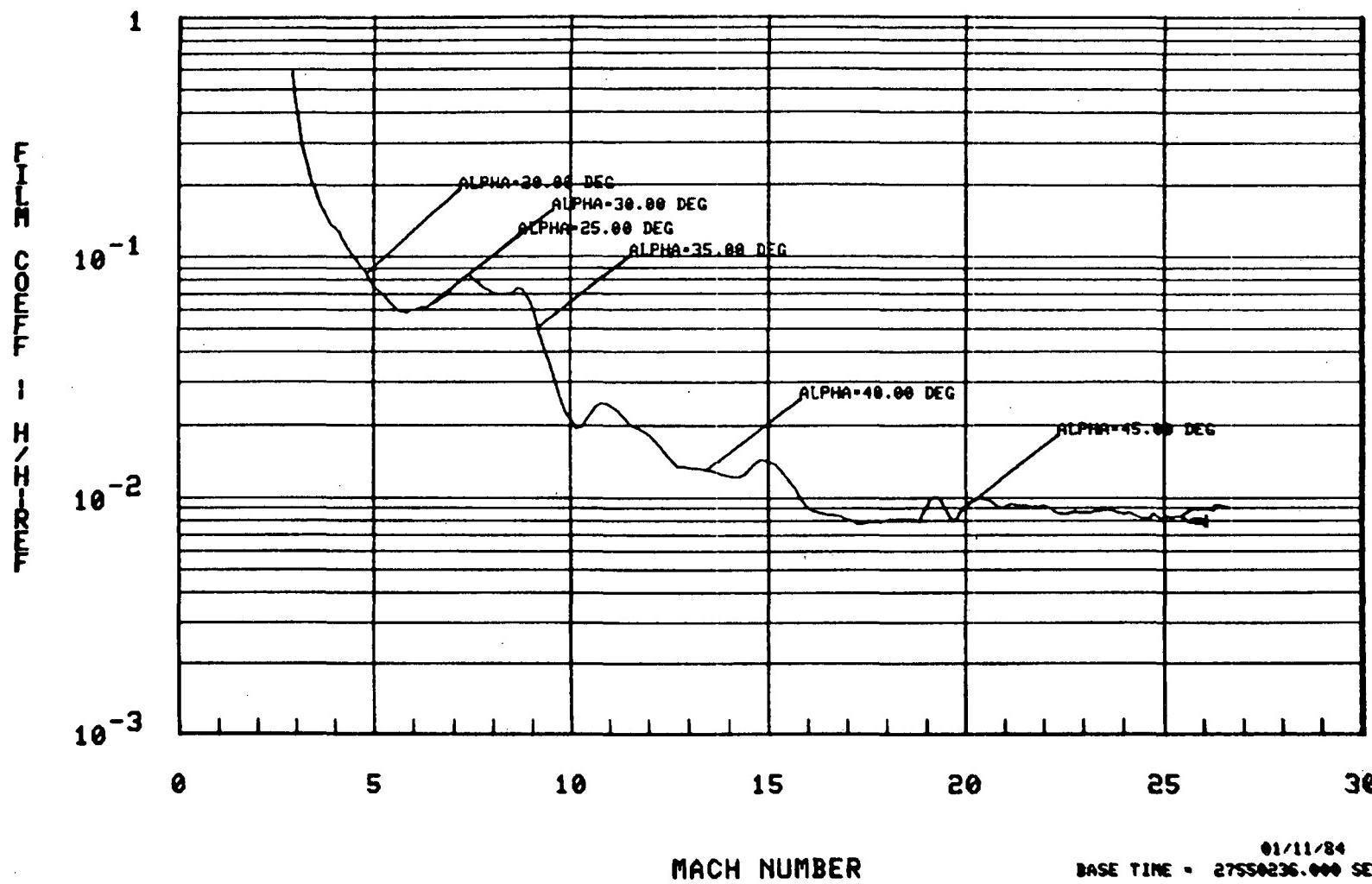
B-381

MACH NUMBER

01/11/84
BASE TIME • 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U07T9910A/H-REF 200-1530 SEC



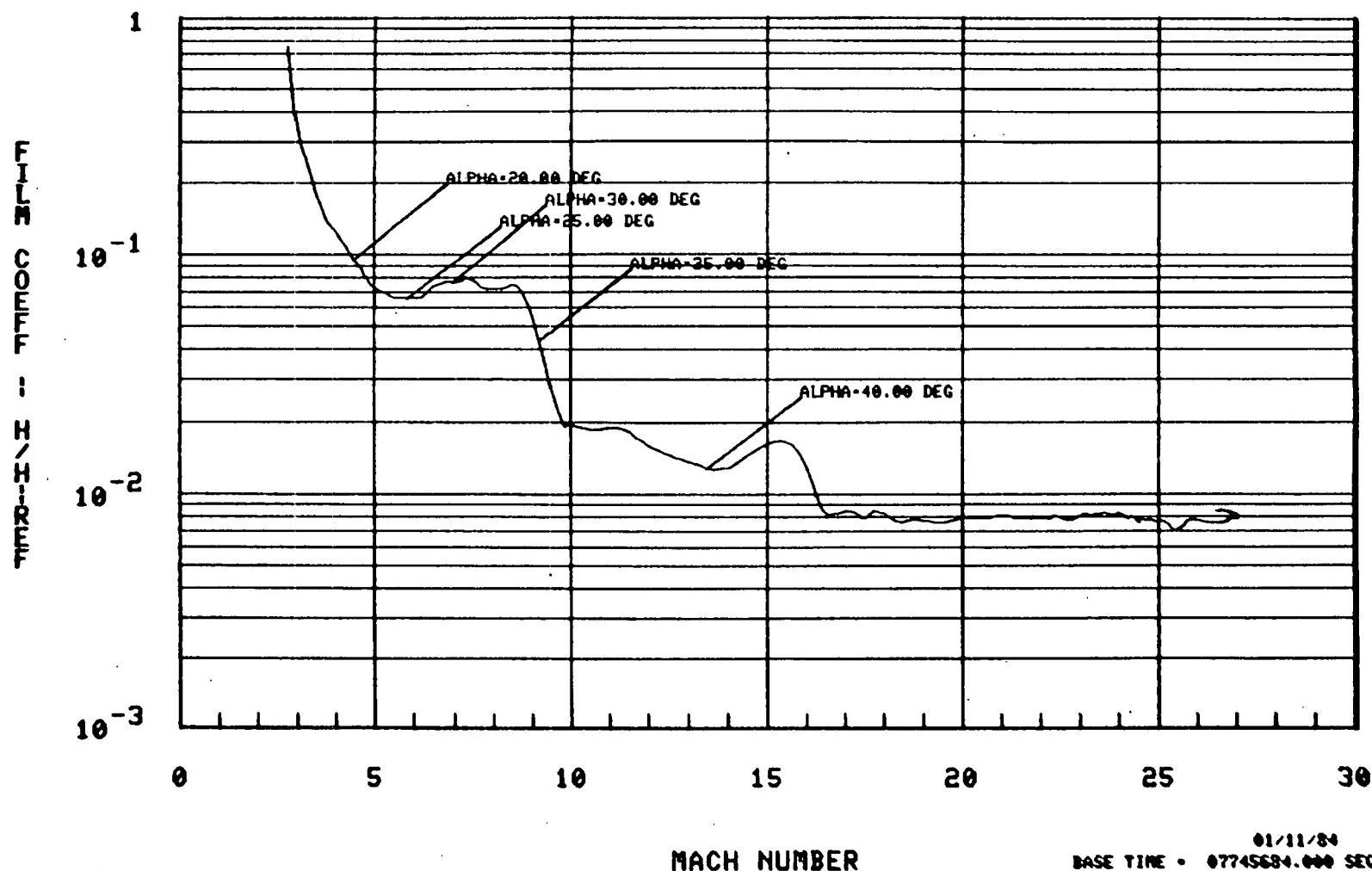
B-382

MACH NUMBER

01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U07T9910A/H-REF 200-1440 SEC

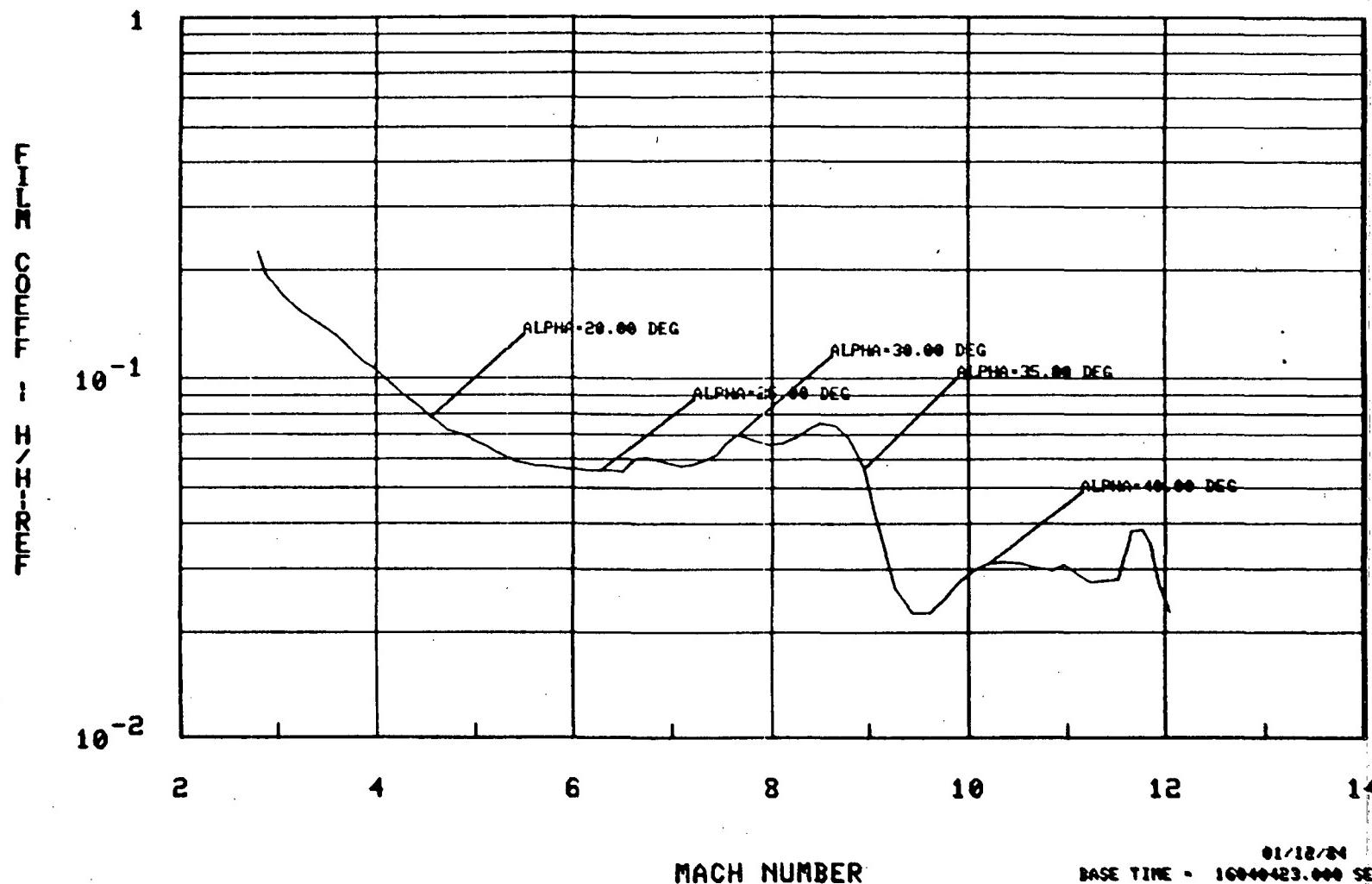


01/11/84

BASE TIME • 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U07T9S10A/H-REF 965-1360 SEC

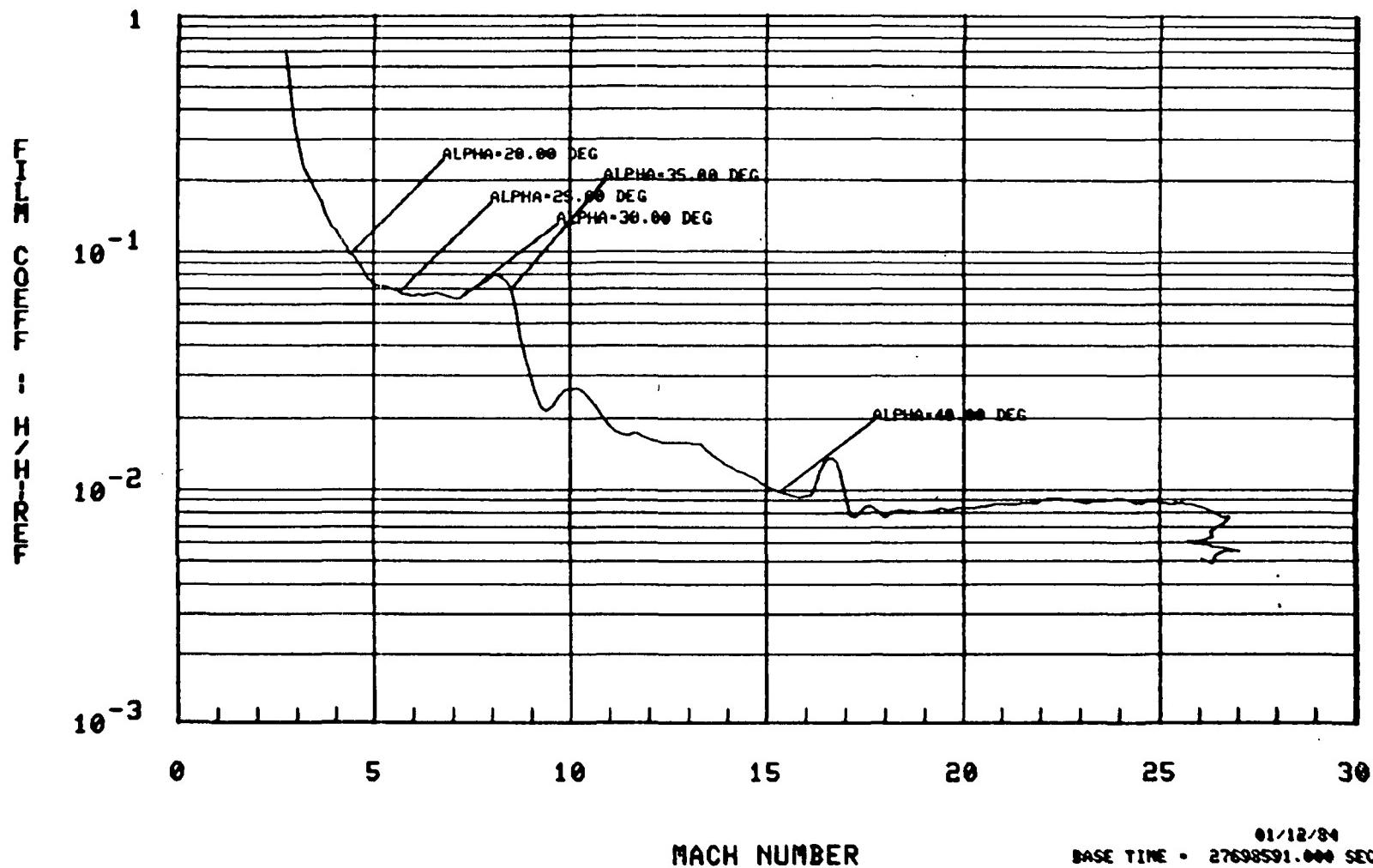


01/12/84
BASE TIME - 16044423.000 SEC.

B-384

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U07T9910A/H-REF 150-1430 SEC



B-385

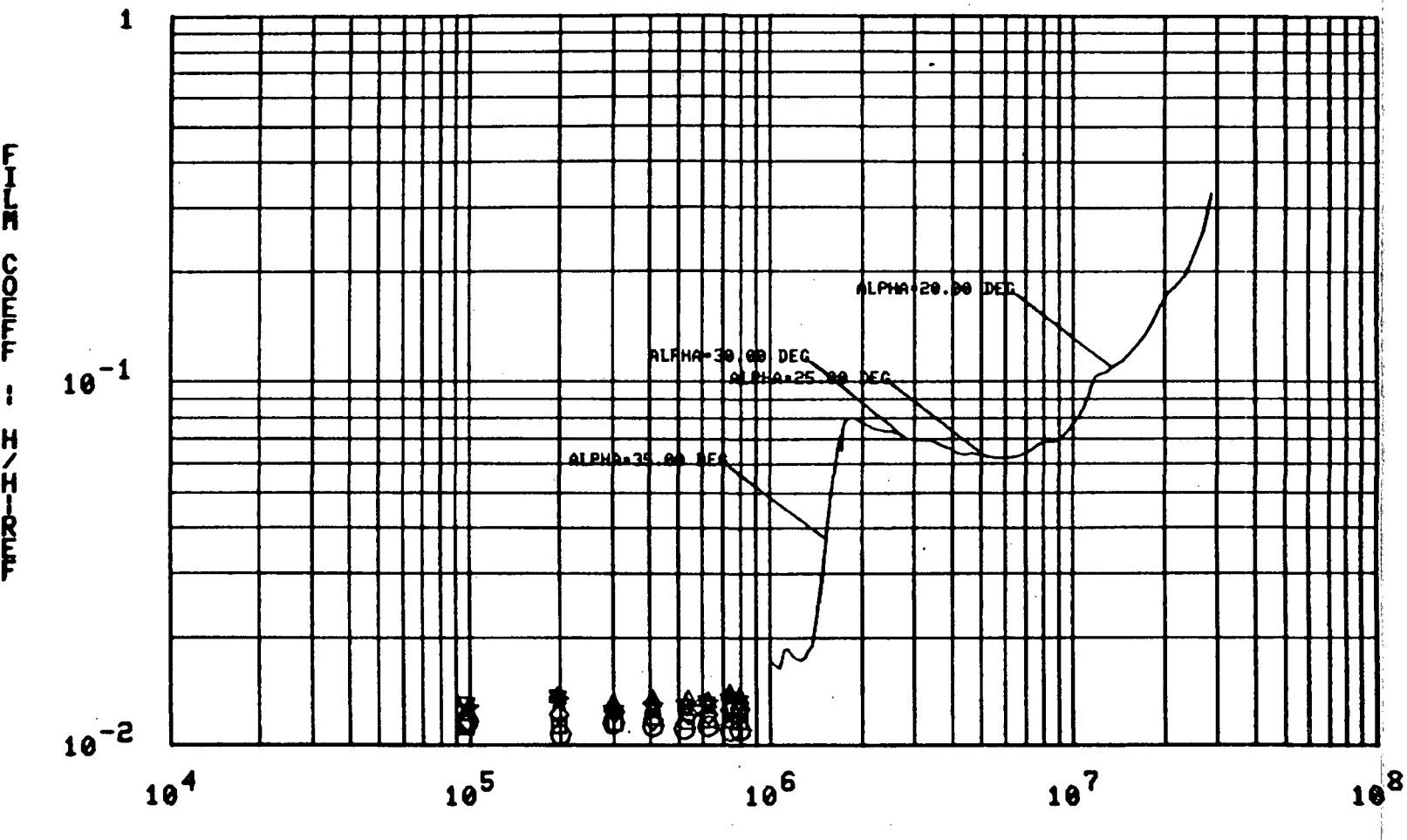
MACH NUMBER

01/12/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U0719910A/H-REF 1065-1500 SEC



B - 386

01/11/84
BASE TIME = 09049744.000 SEC.

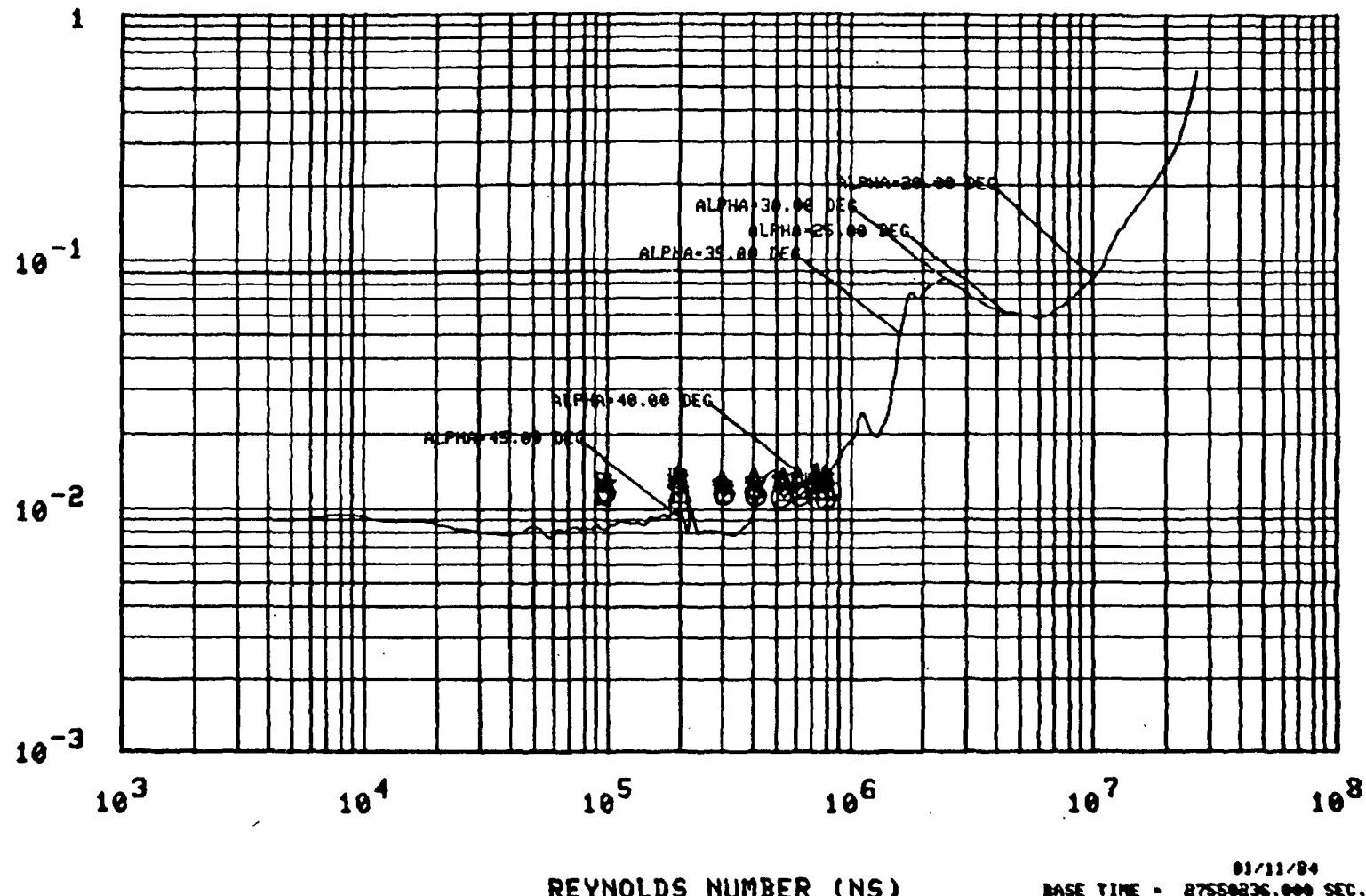
STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U87T9910A/H-REF 200-1530 SEC

LINE DRAWINGS - FIGURE

B-387



REYNOLDS NUMBER (NS)

01/11/84

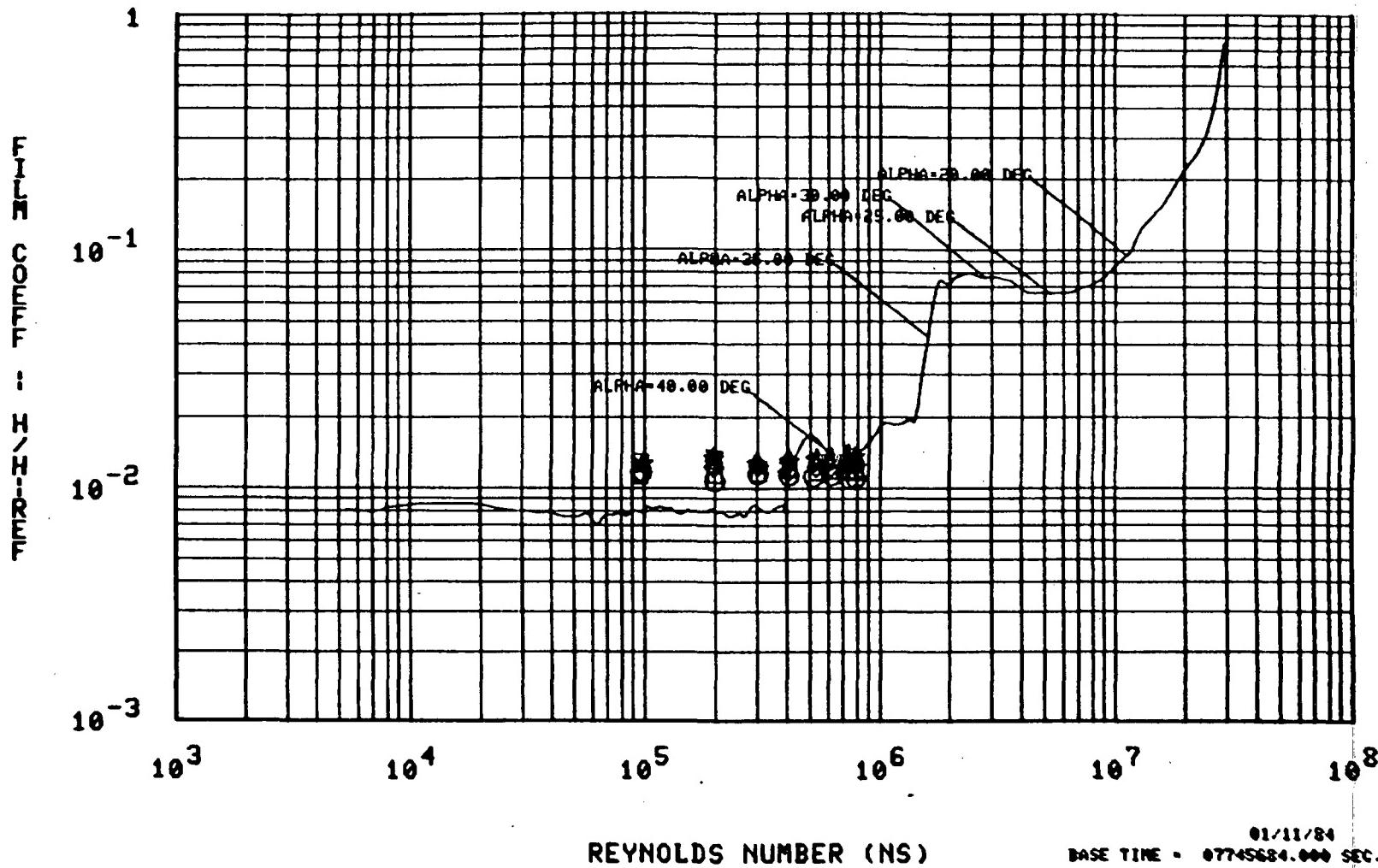
BASE TIME = 87550236.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

O ◊ ▲ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9910A/H-REF 200-1440 SEC



B-388

REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.000 SEC.

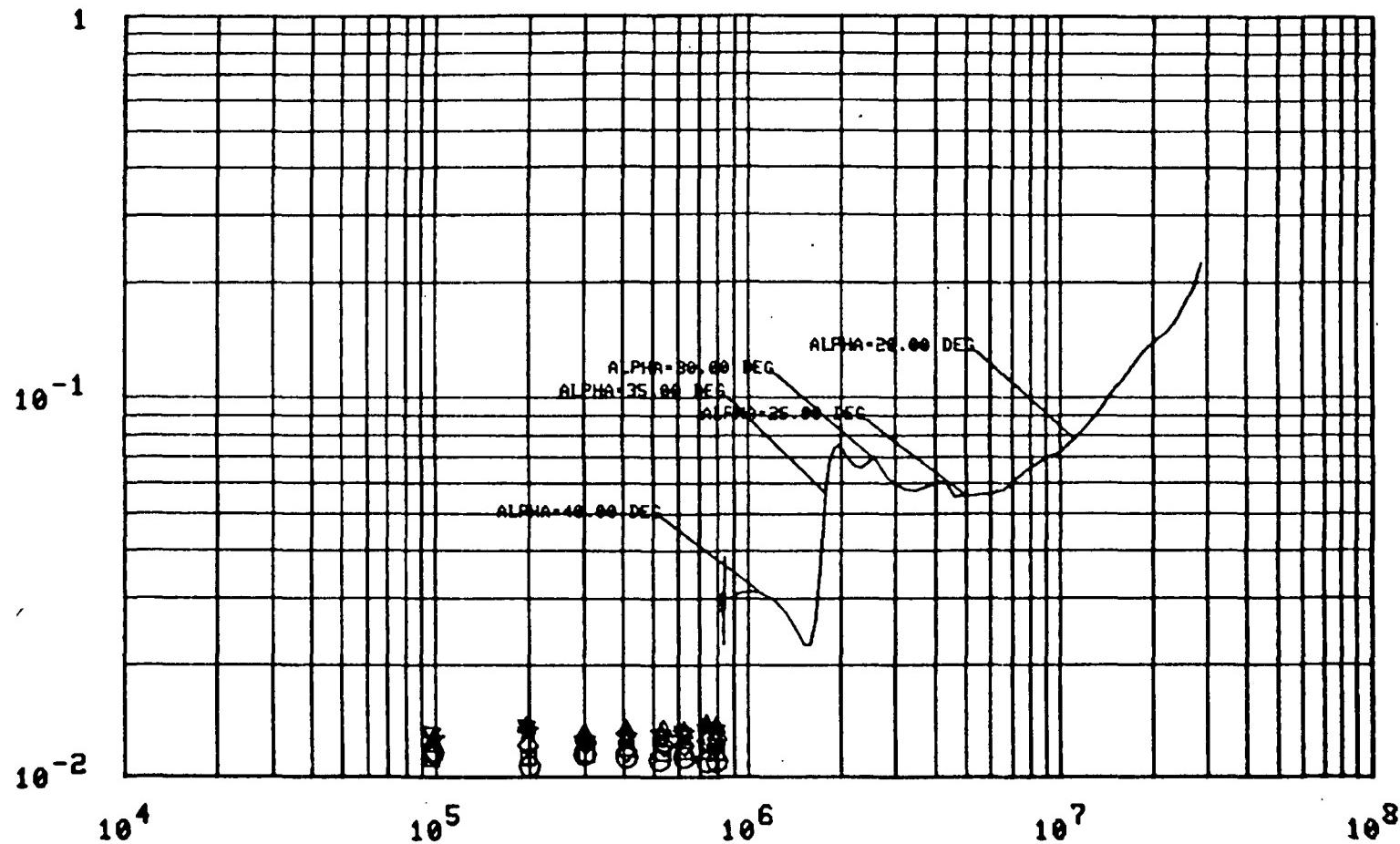
STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

○ □ △ ▲ ☆

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9910A/H-REF 965-1360 SEC

LINE CODES : H/H-H-H-H



B-389.

REYNOLDS NUMBER (NS)

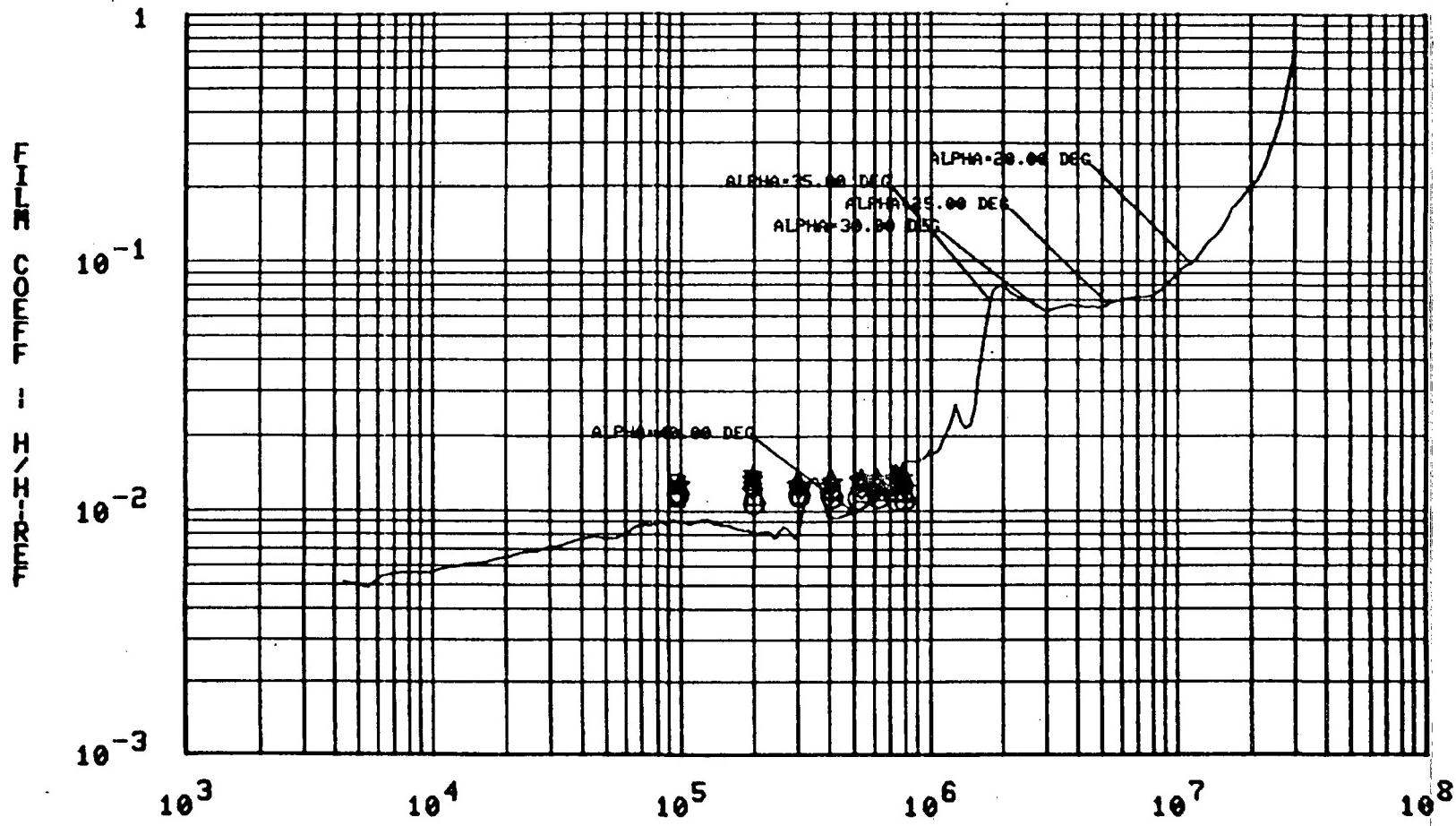
01/12/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

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OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9910A/H-REF 150-1430 SEC



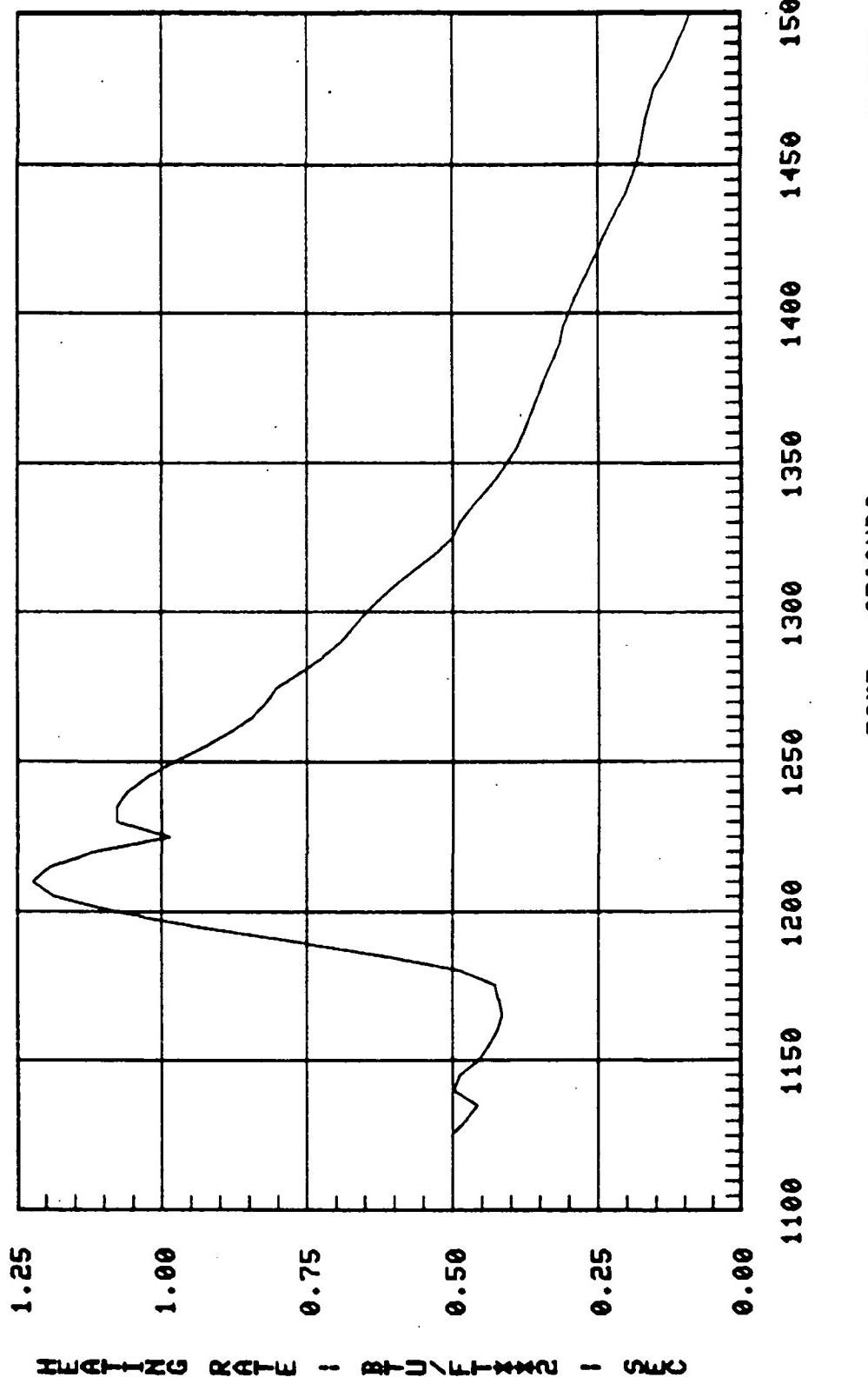
B-390

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 27698591.000 SEC.

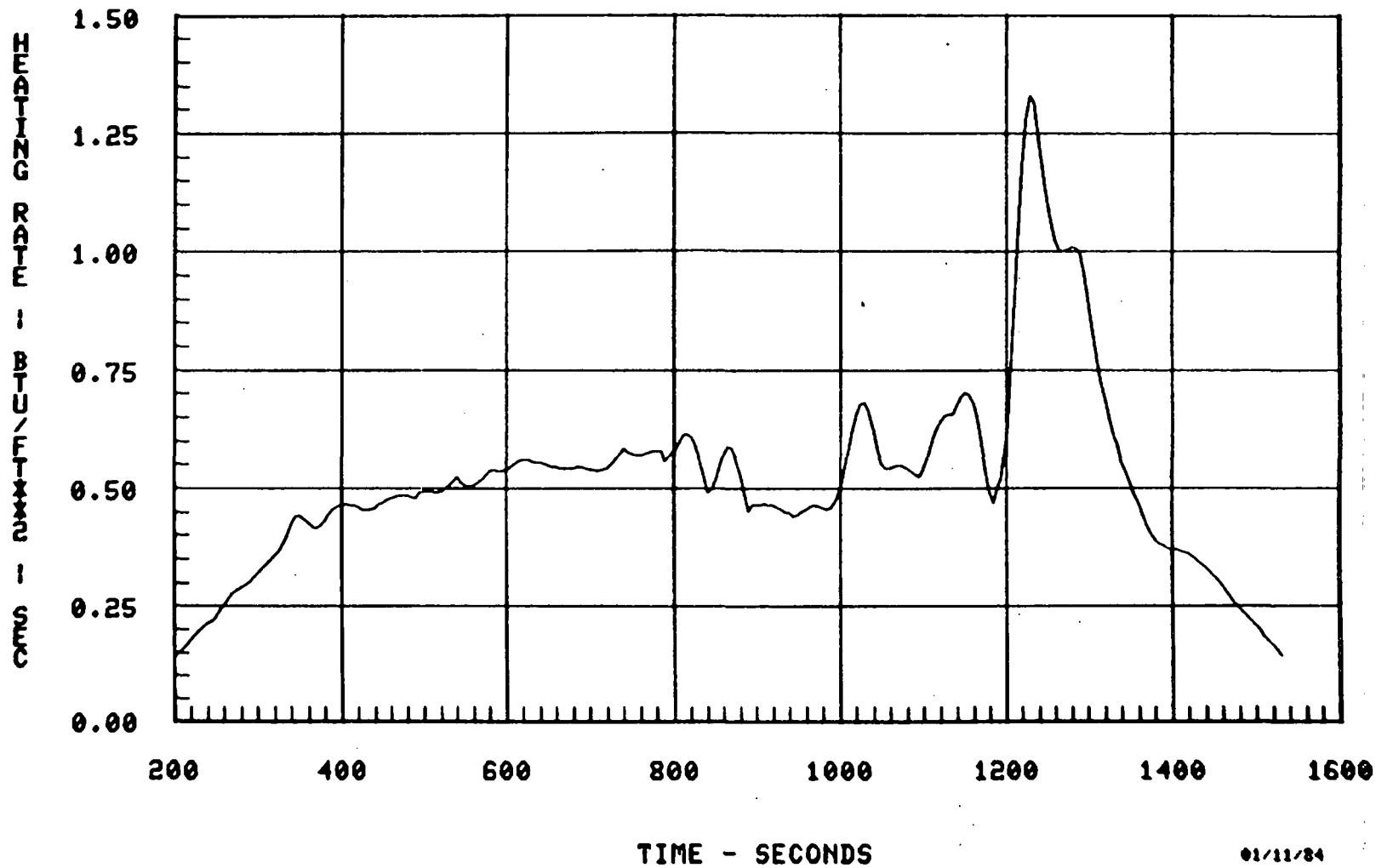
STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U6779918A



STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

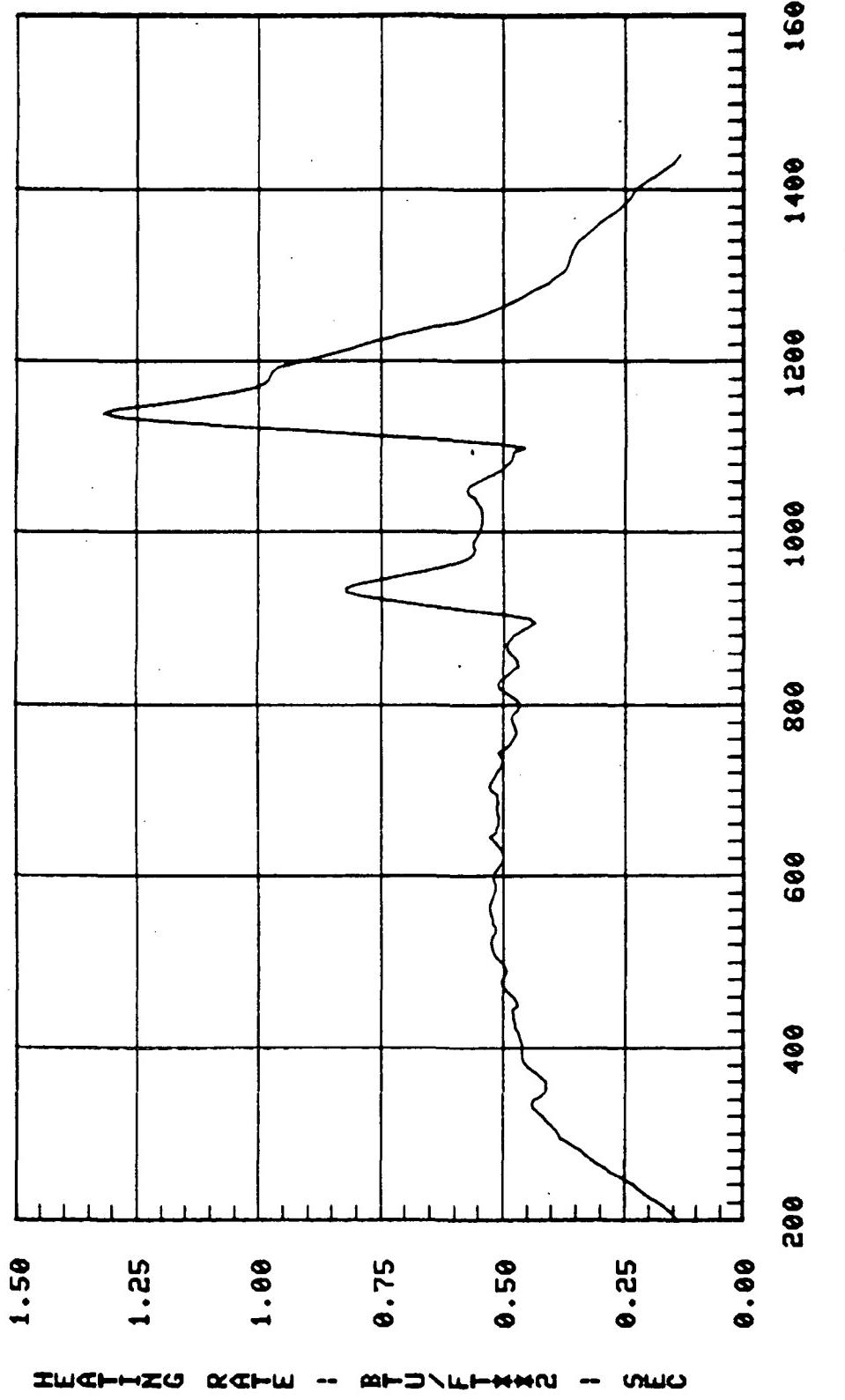
U07T9910A



B-392

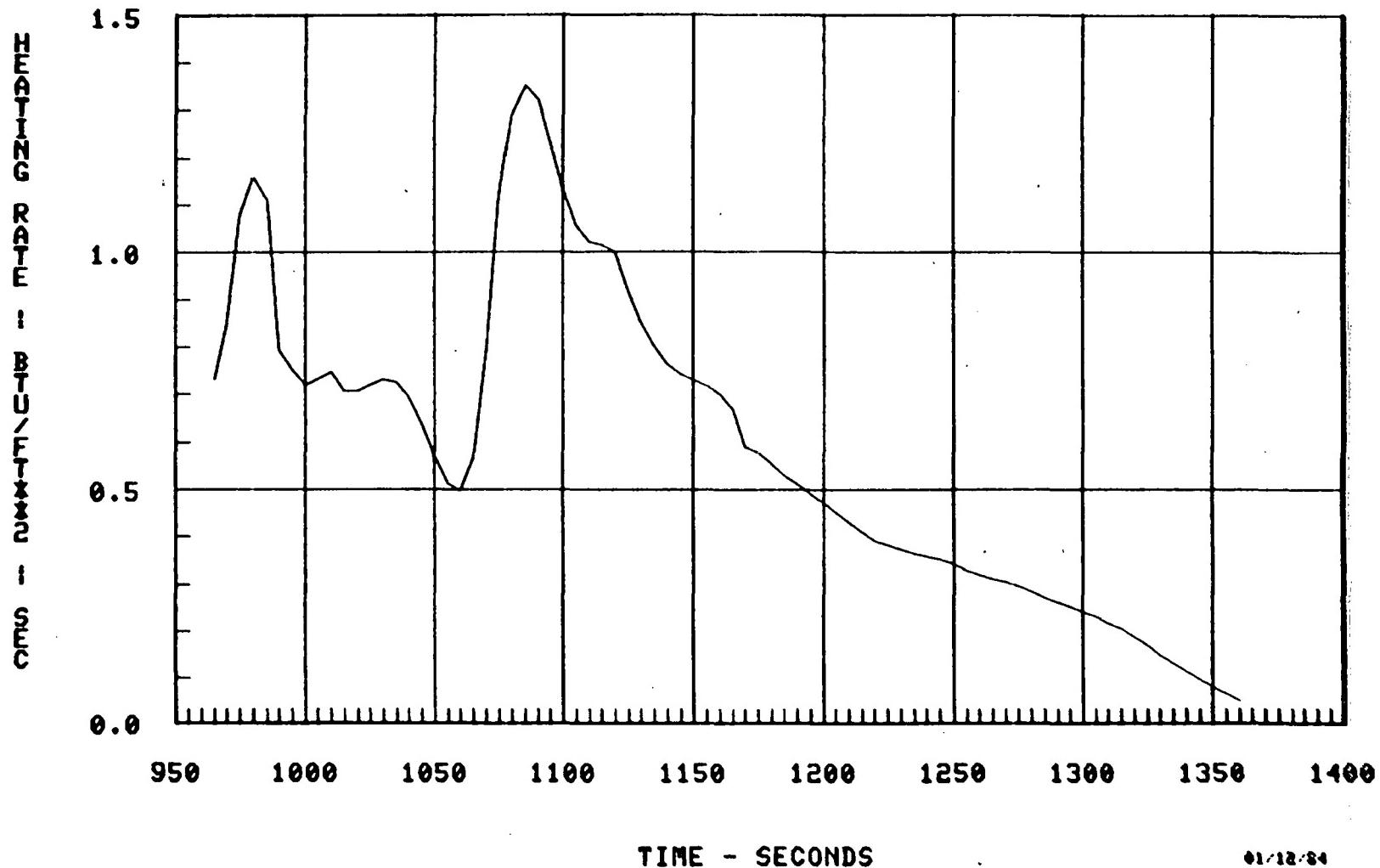
STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U0779910A



STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

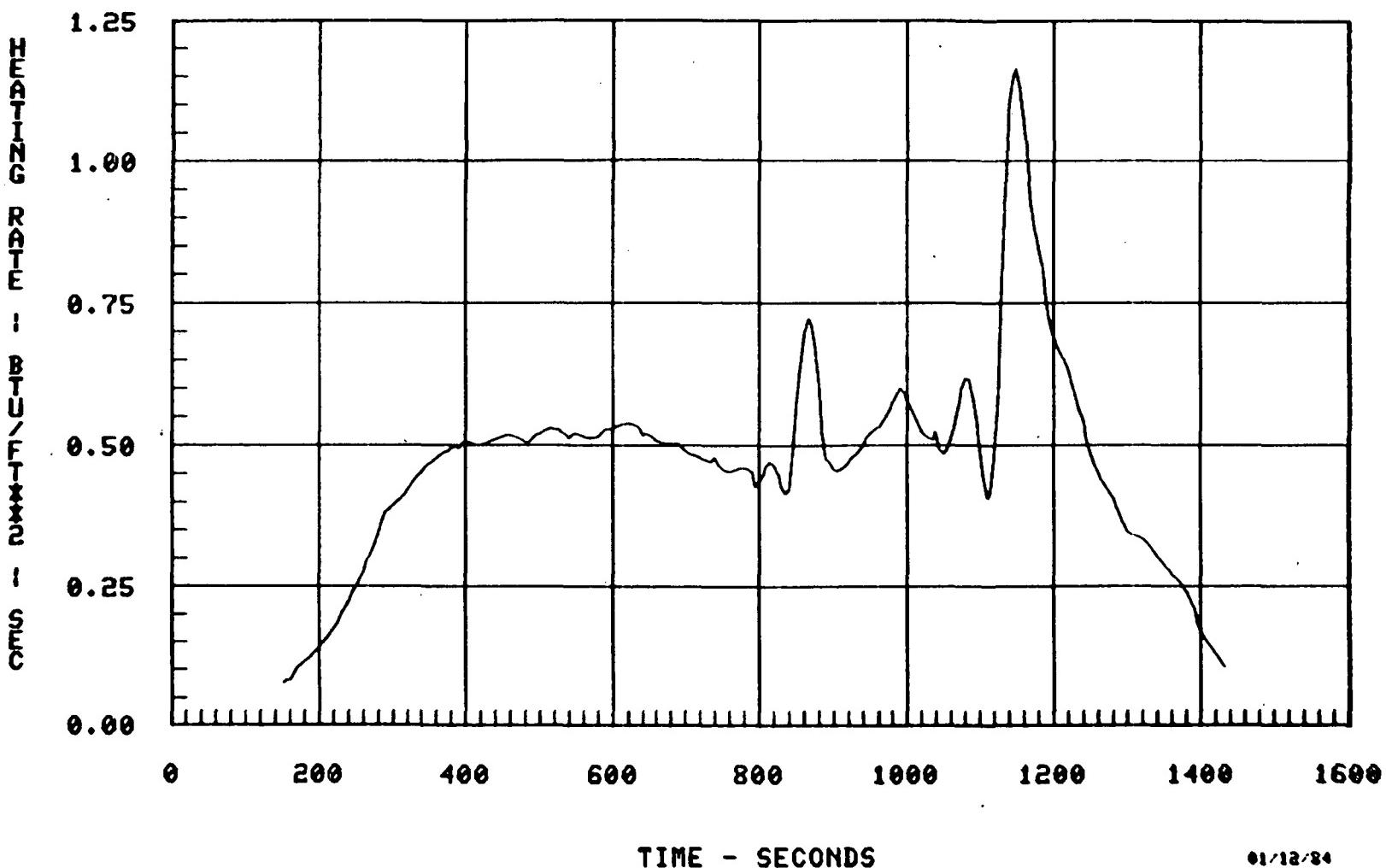
U07T9910A



01/12/84

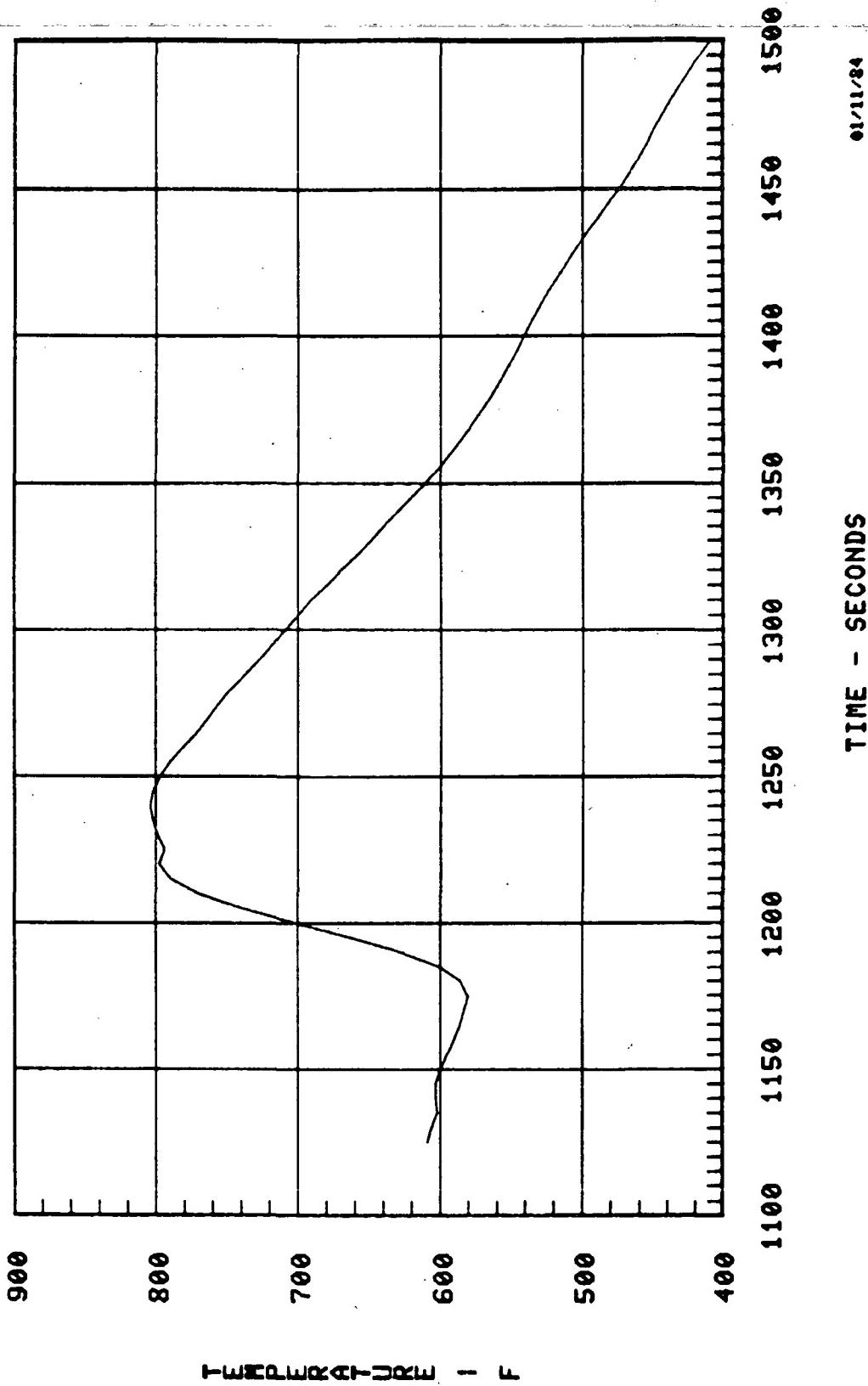
STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U07T9910A



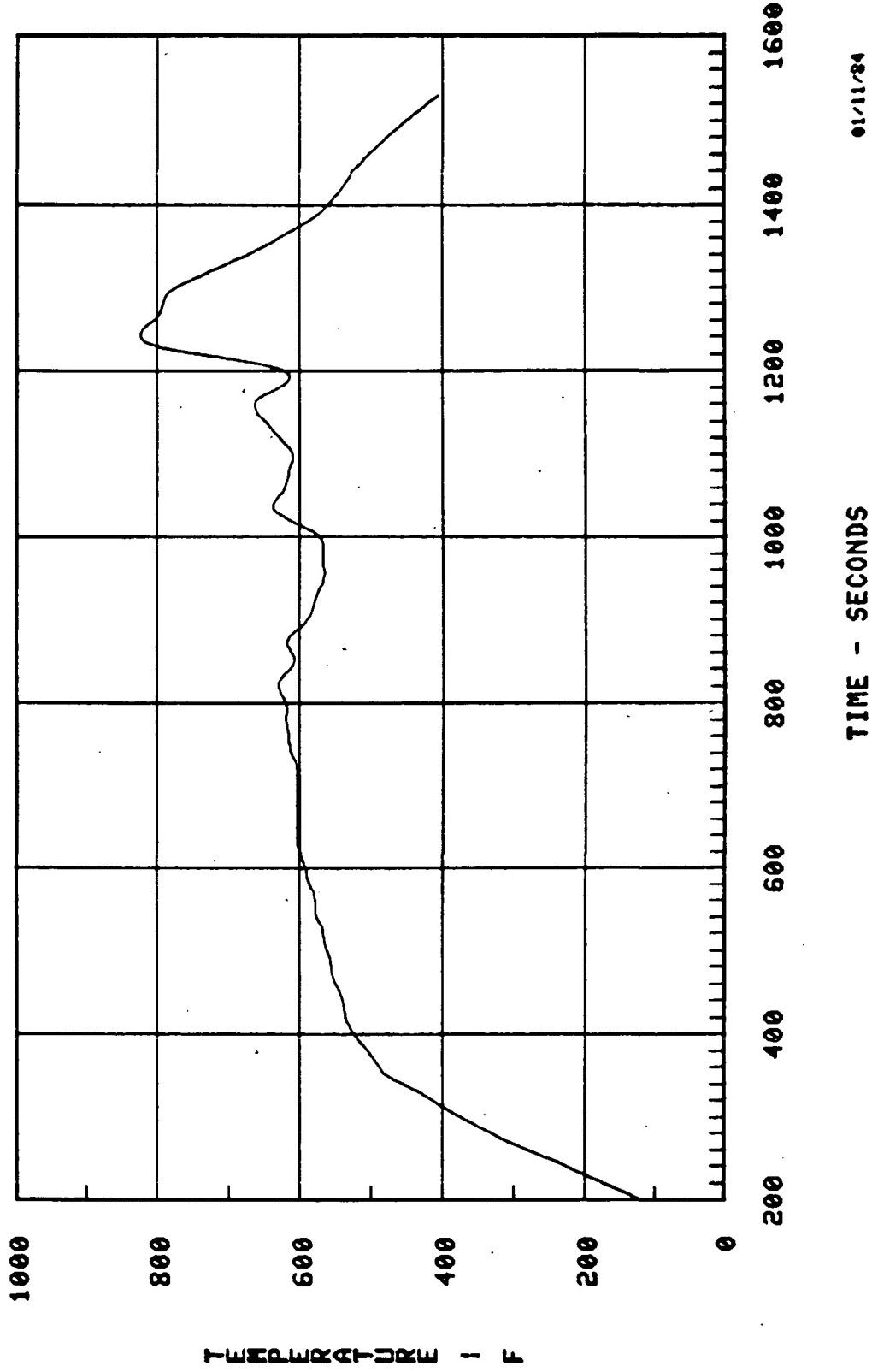
STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U077T9910A



STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

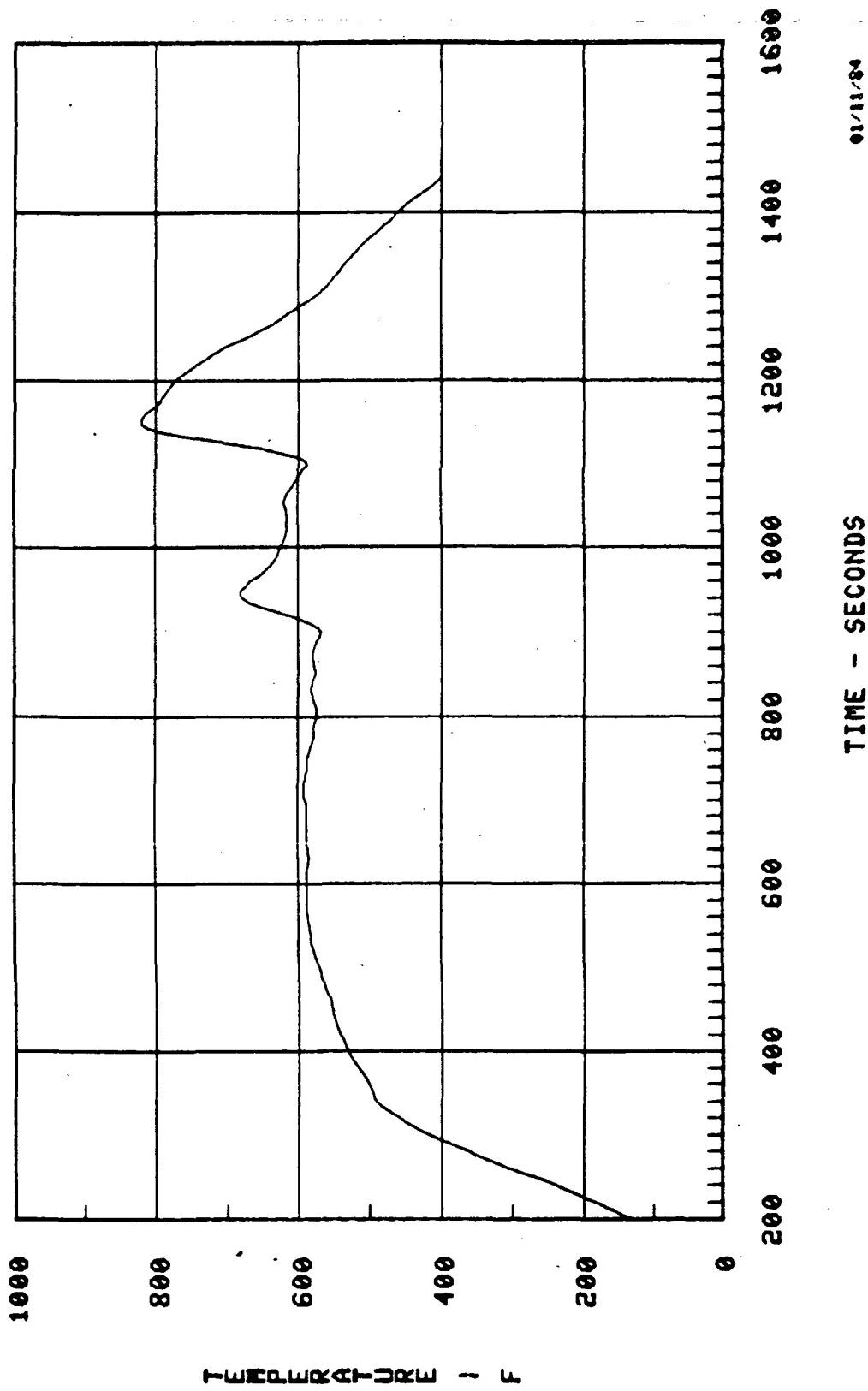
U07T9910A



- - MAX-DEADZONE

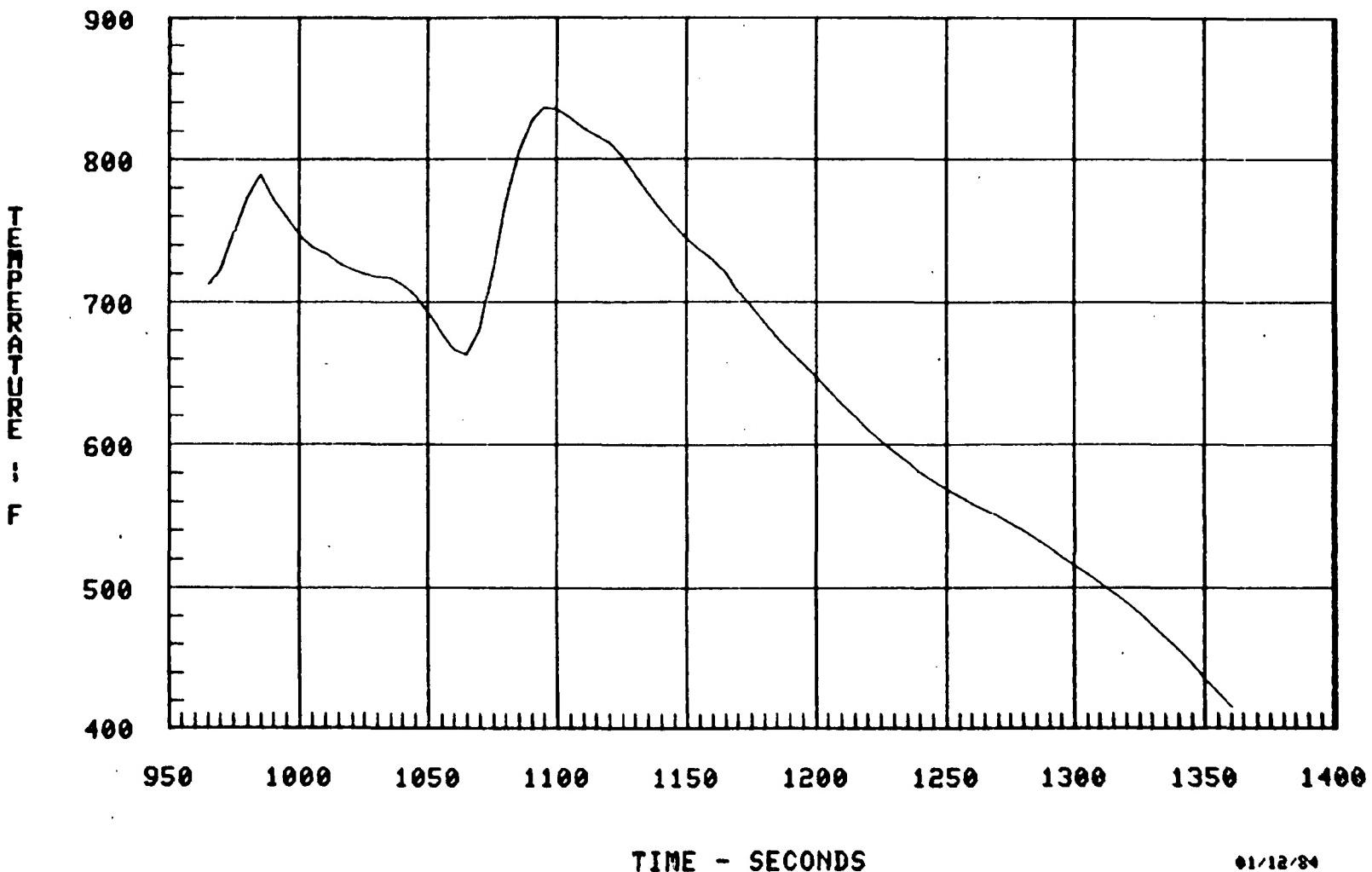
STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

U077T9910A



STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

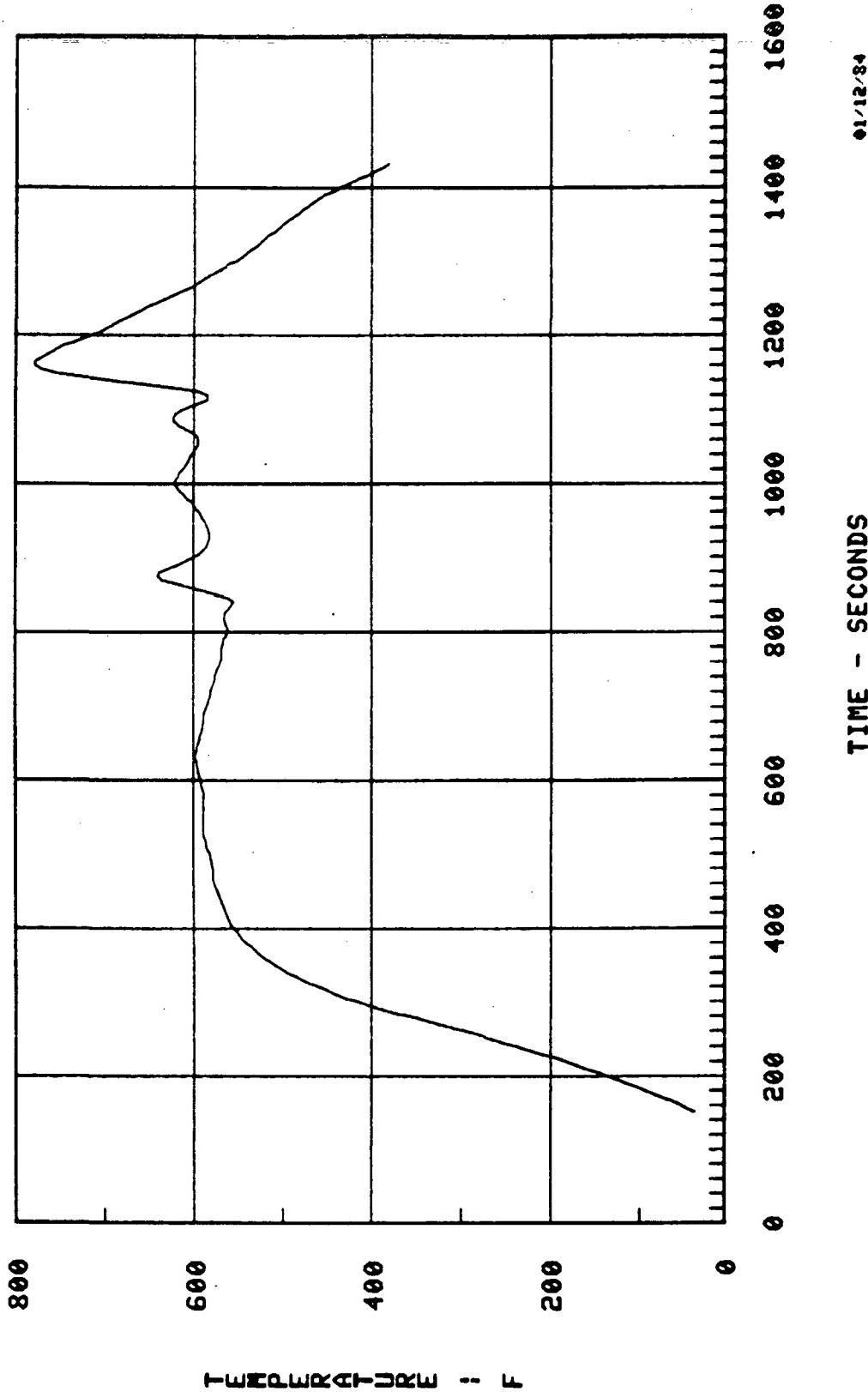
U07T9910A



01/12/84

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.31) Z=440

00779990A



TIME-SERIES -- F

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

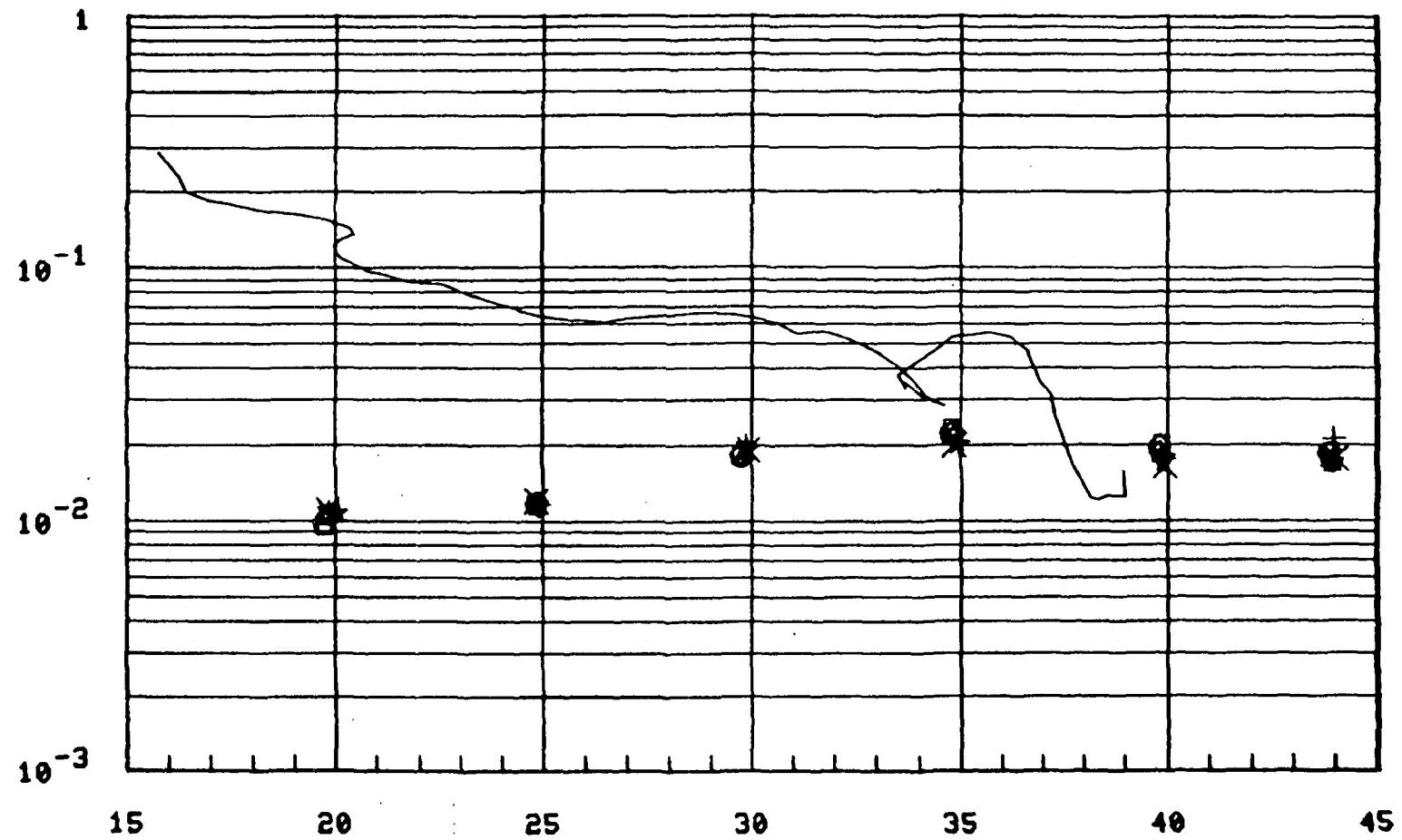
OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

V07T9912A/H-REF 1065-1500 SEC

○ □ ◇ △ ▽ ★ + X

LINE CONFE - H/H-RMPL

B-401



ANGLE-OF-ATTACK - DEG

01/11/84

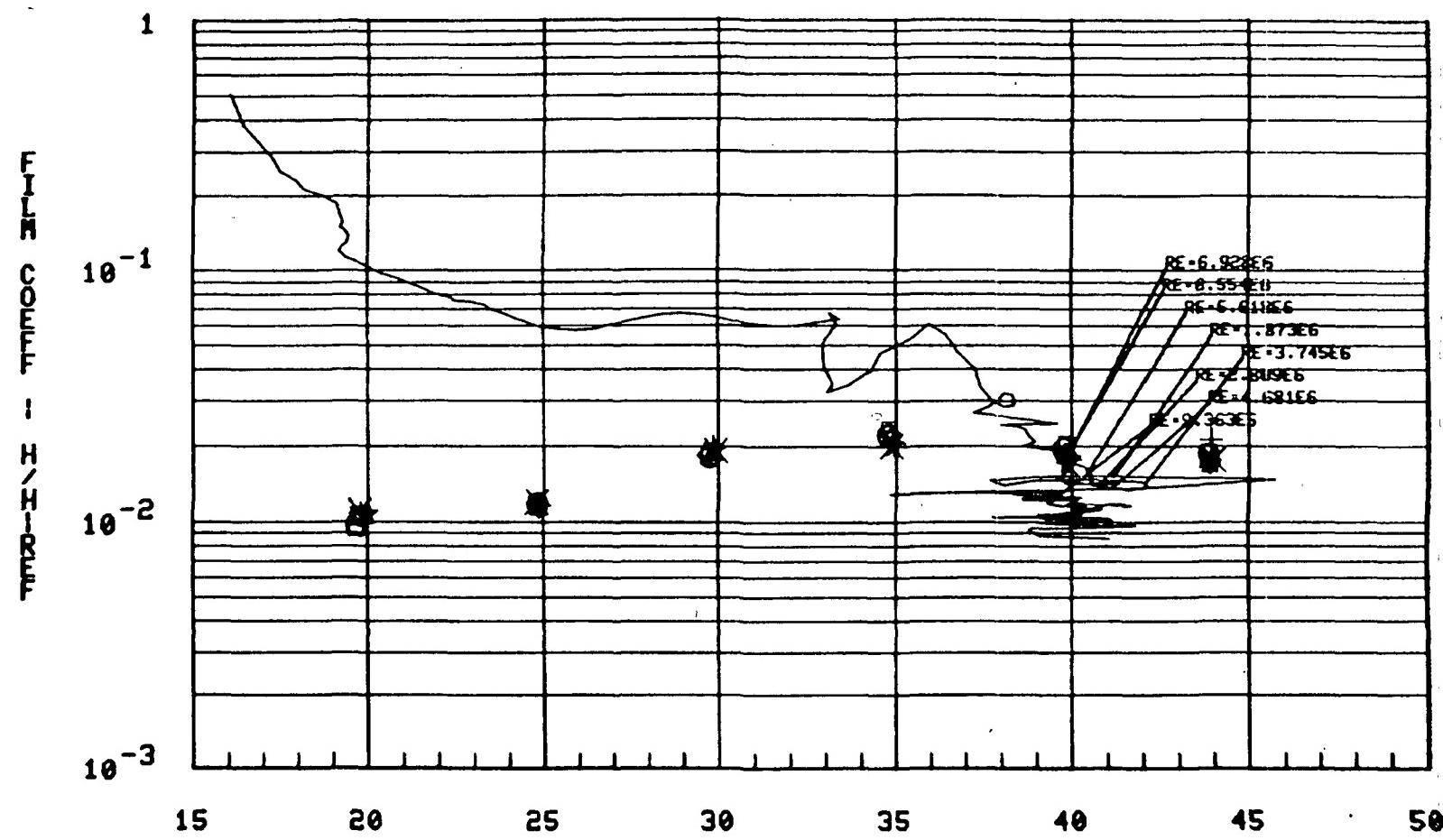
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

O ◊ ▲ ▷ ★ + X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9912A/H-REF 200-1530 SEC



B-402

ANGLE-OF-ATTACK - DEG

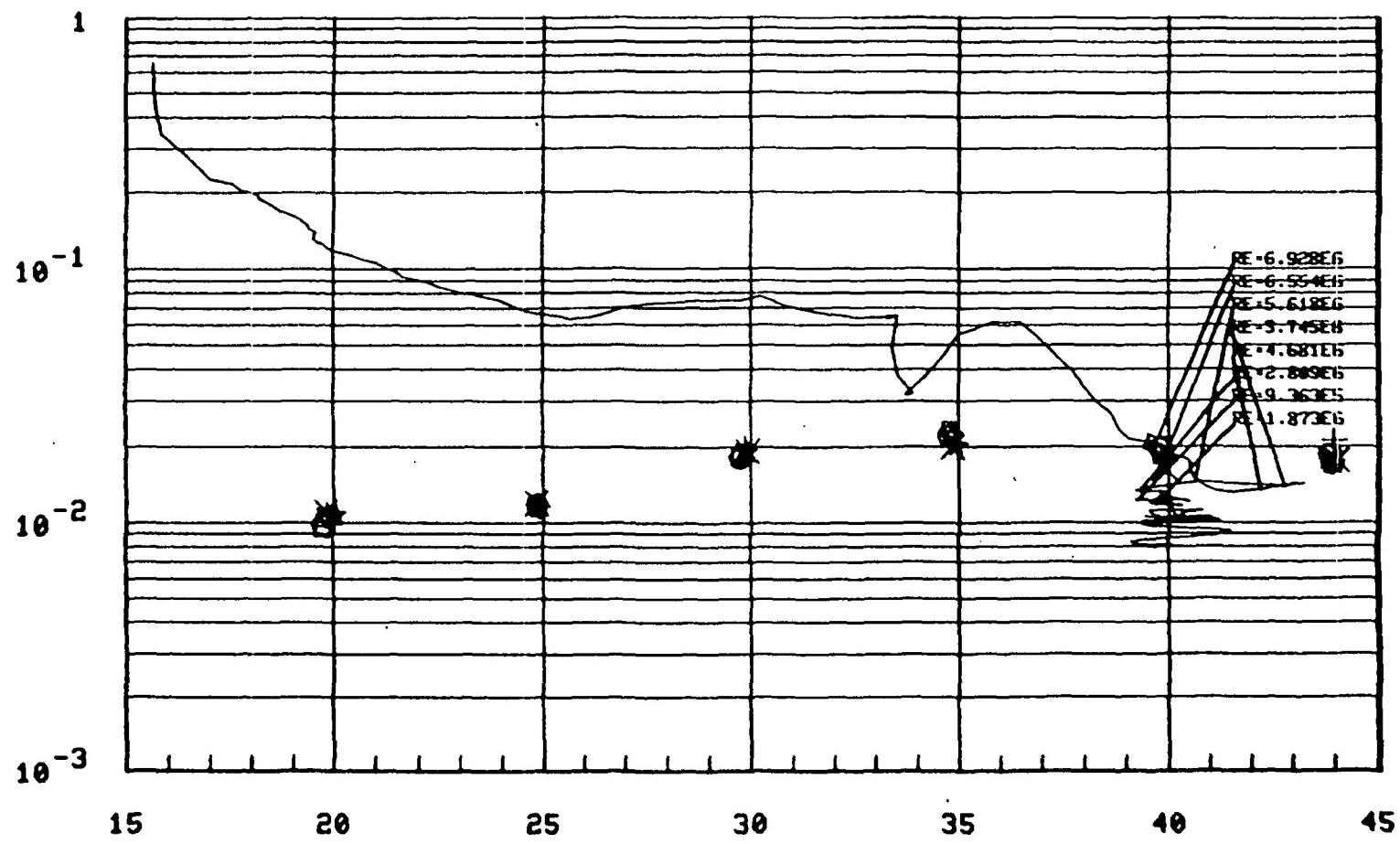
01/11/84
 BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9912A/H-REF 200-1440 SEC

O □ ◇ △ ★ + X



B-403

01/11/84
ANGLE-OF-ATTACK - DEG

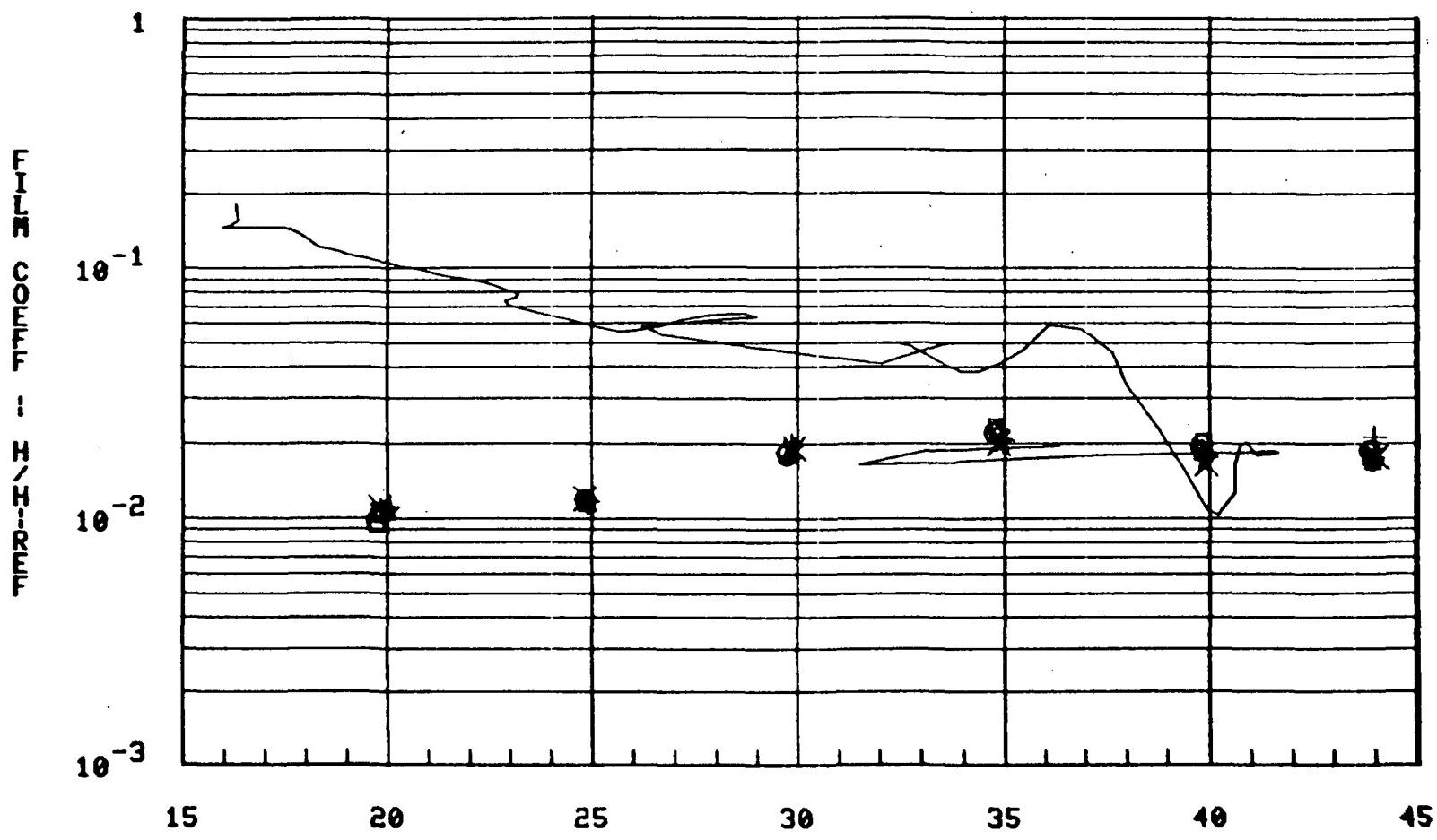
07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

○ □ ◇ △ ★ + X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U6779912A/H-REF 965-1360 SEC



ANGLE-OF-ATTACK - DEG

01/12/84
 BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

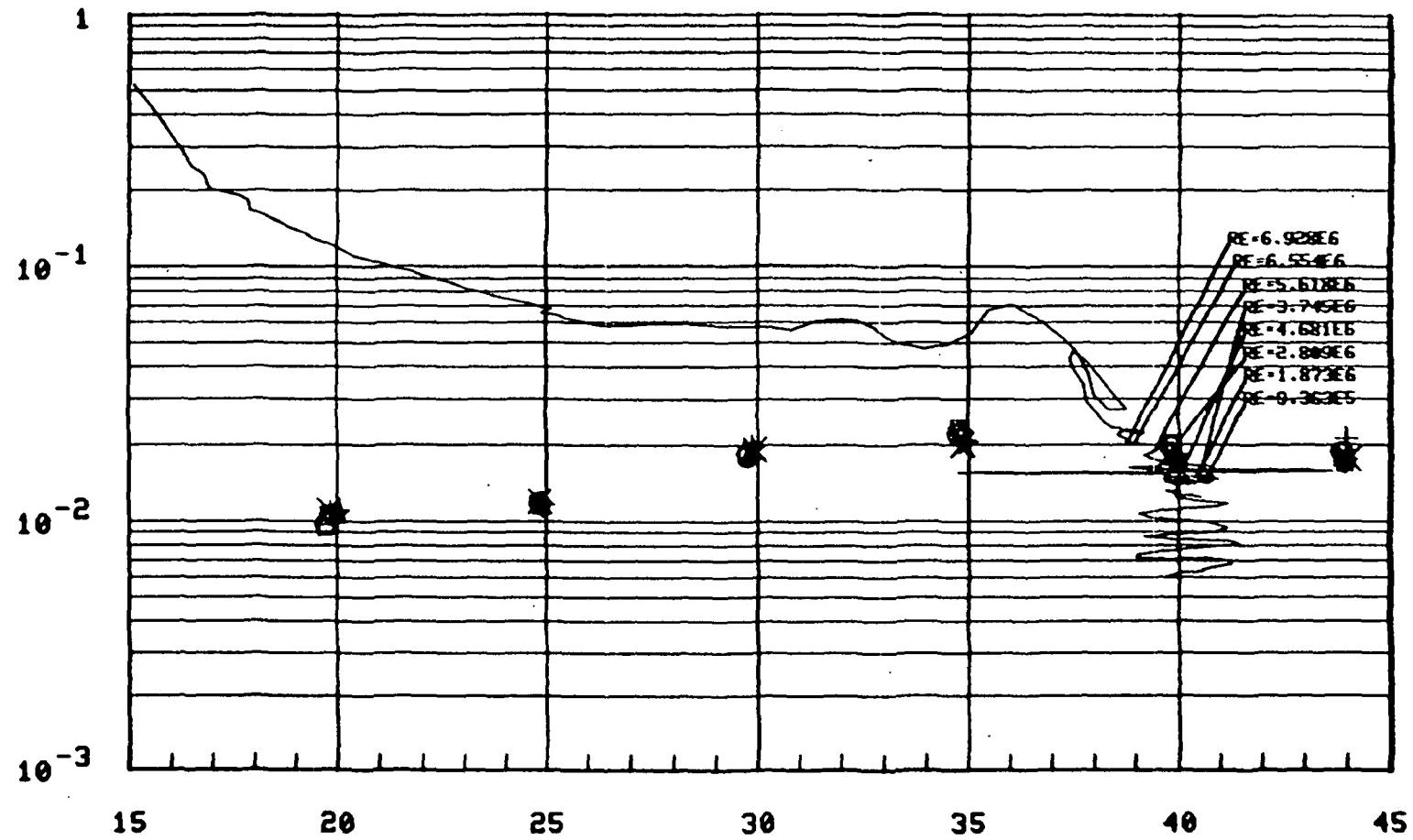
○□◇△▷★+X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9912A/H-REF 150-1430 SEC

LINE DRAWING - H/H-AIRFLOW

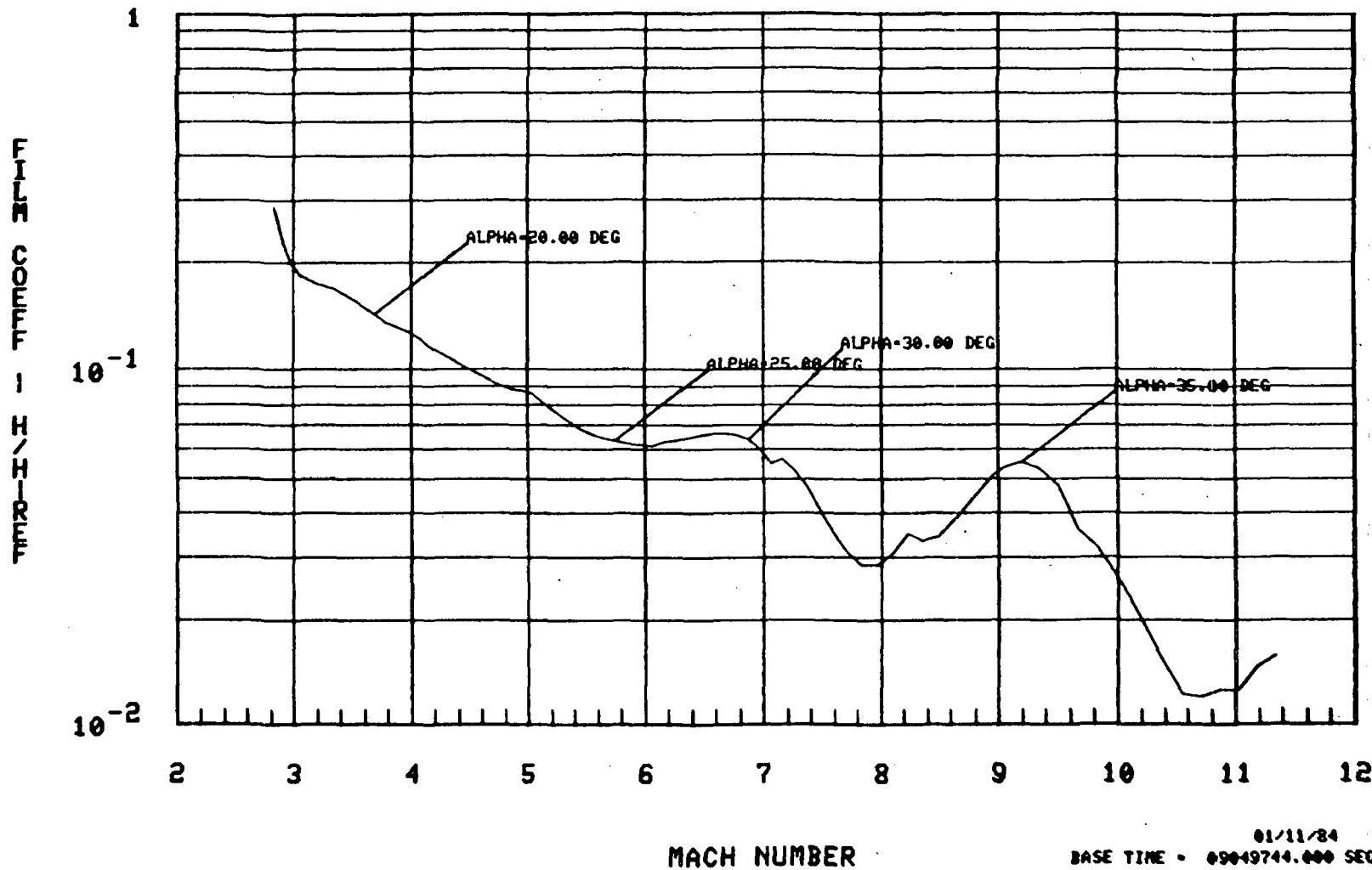
B-405



01/12/84
 BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

U07T9912A/H-REF 1065-1500 SEC

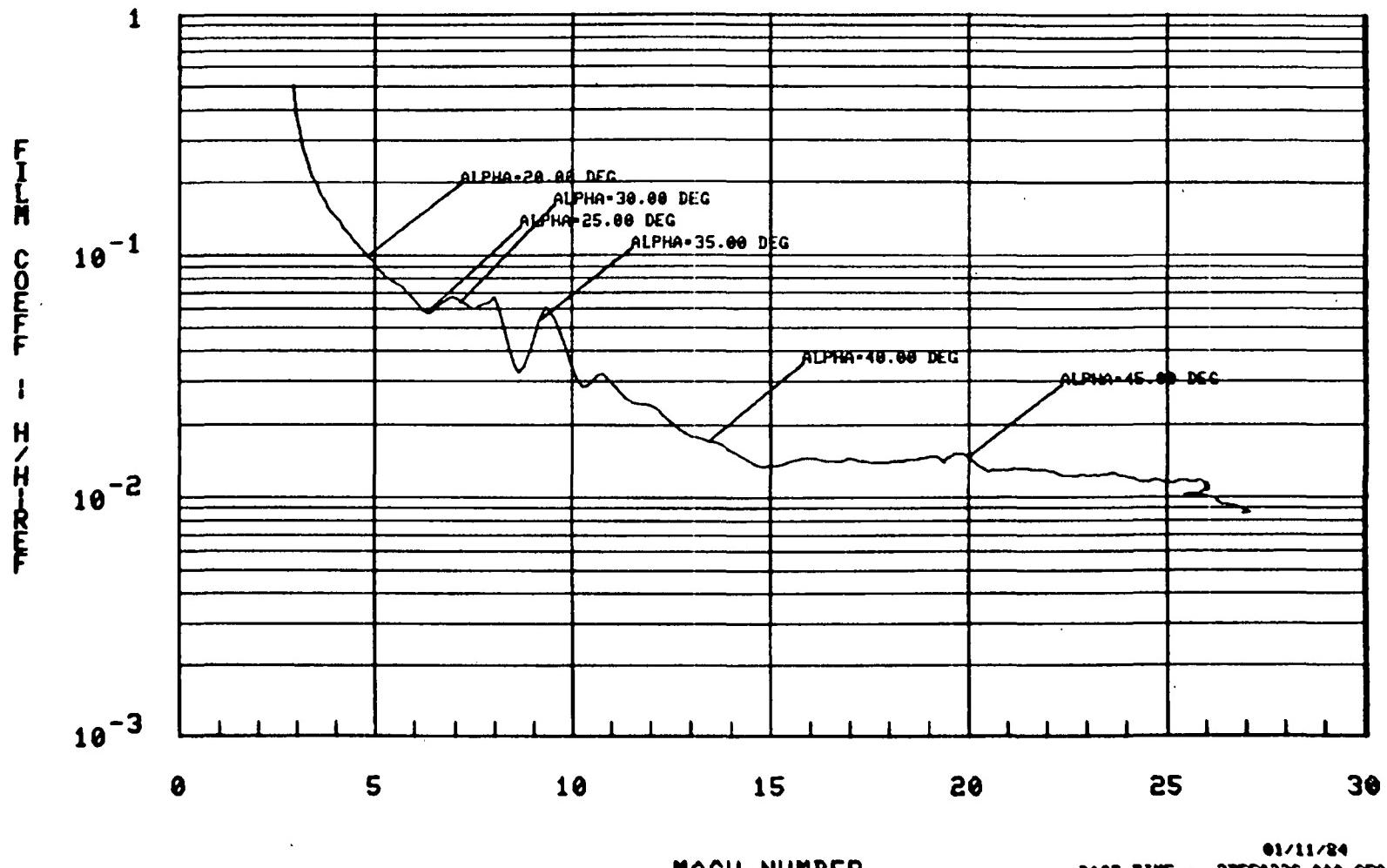


MACH NUMBER

01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

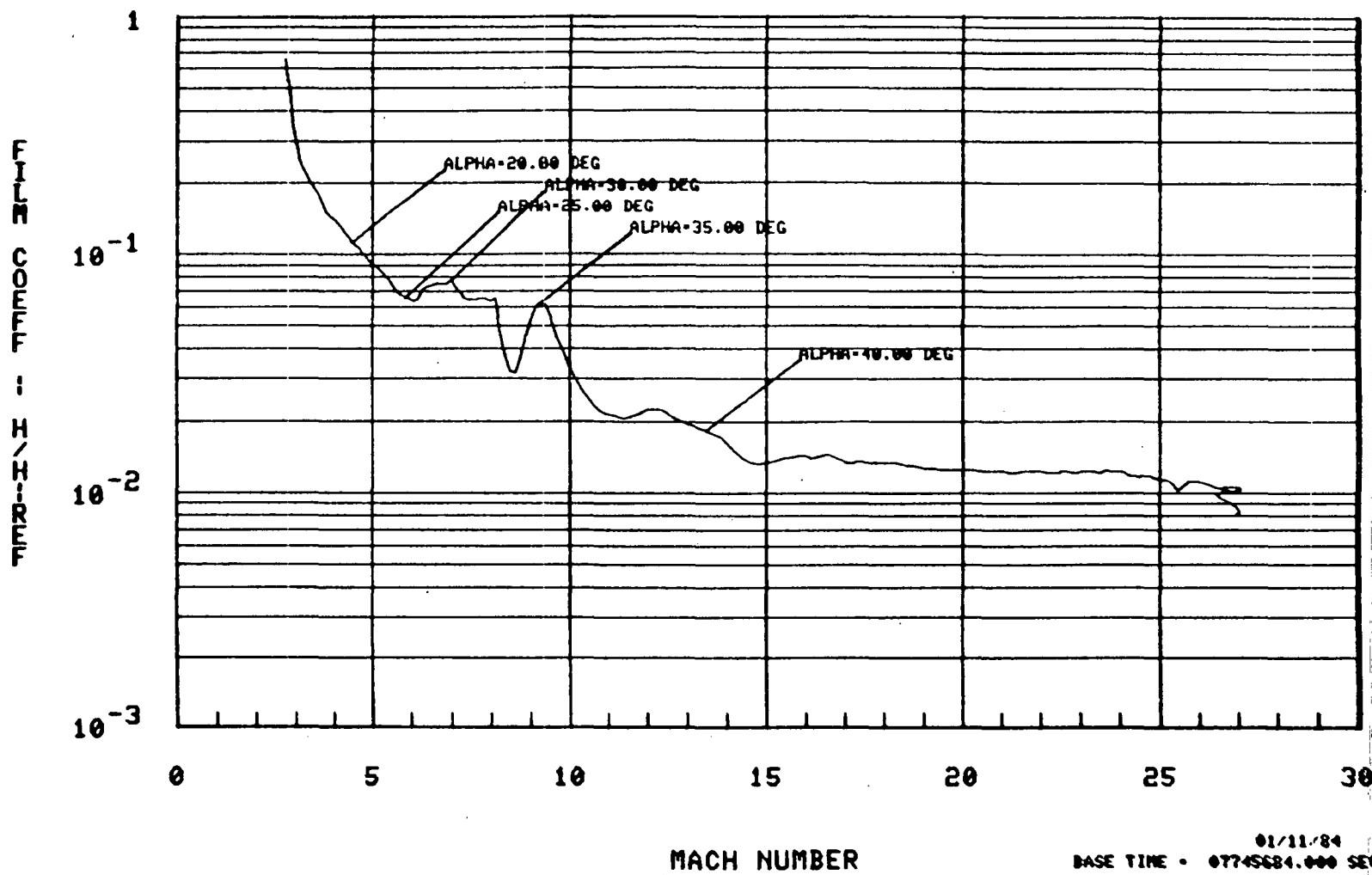
U07T9912A/H-REF 200-1530 SEC



01/11/84
BASE TIME = 87550236.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

V07T9912A/H-REF 200-1440 SEC

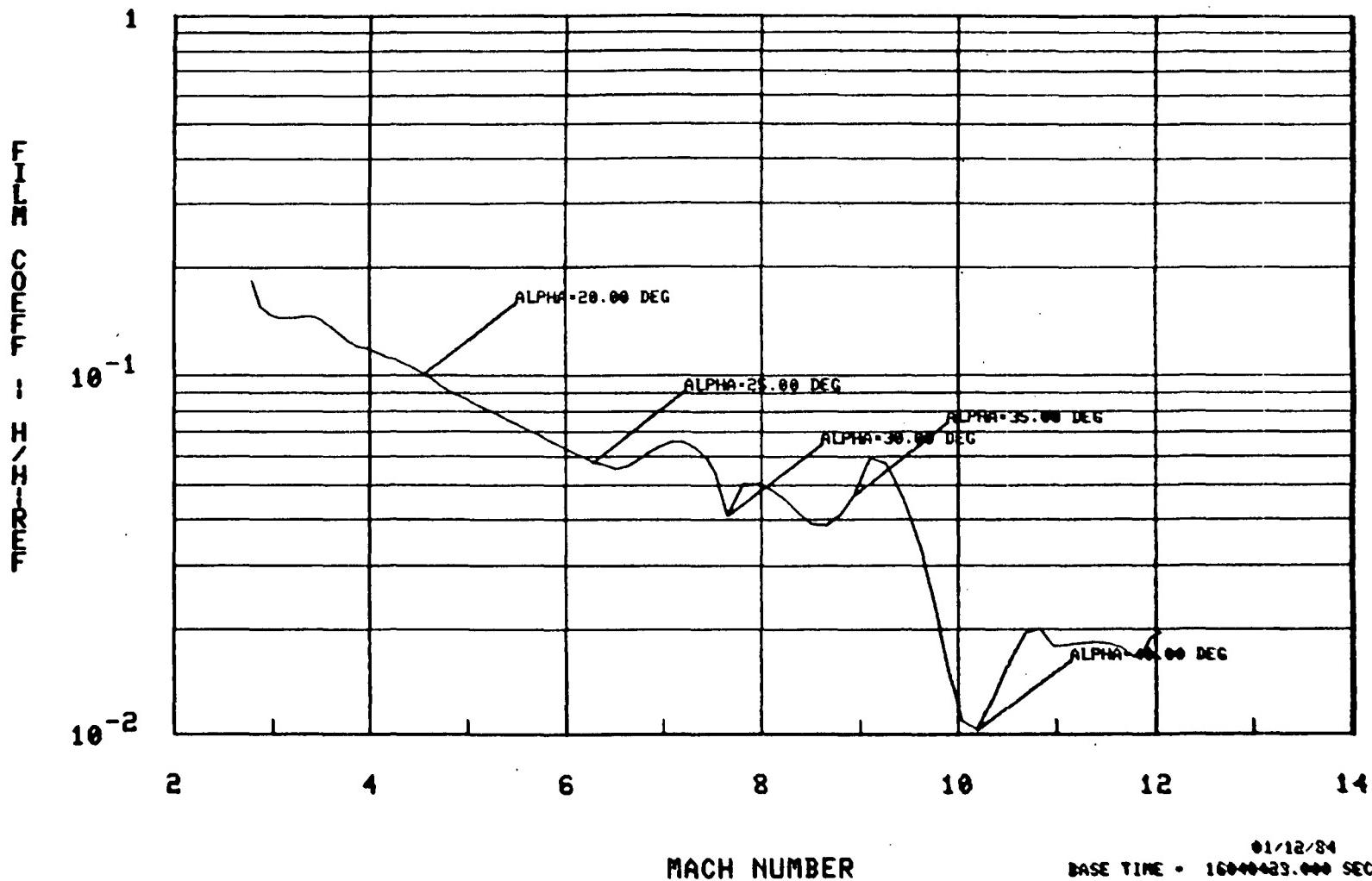


B-408

01/11/84
BASE TIME • 07745684.000 SEC.

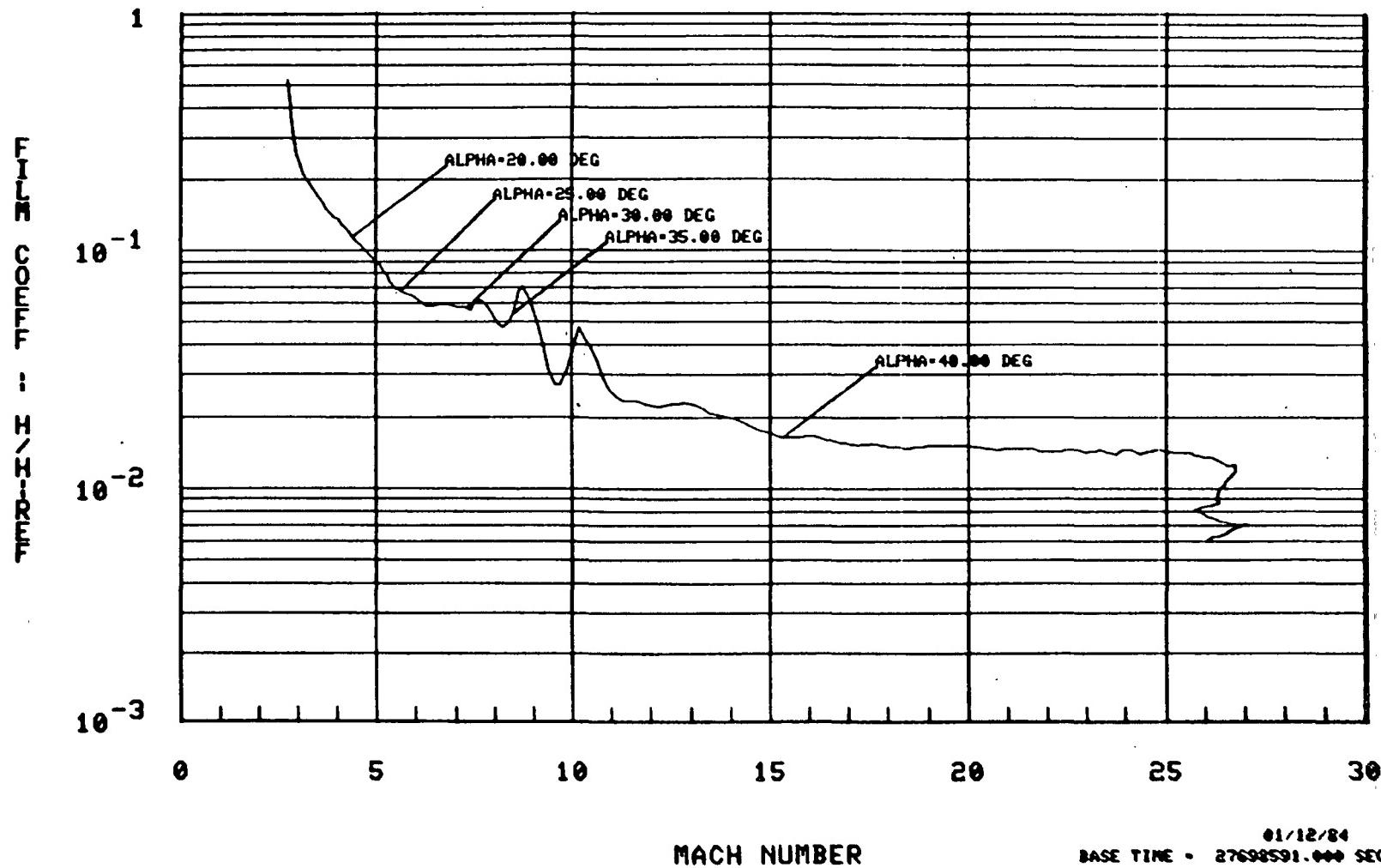
STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

U07T9912A/H-REF 965-1360 SEC



STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

U07T9912A/H-REF 150-1430 SEC

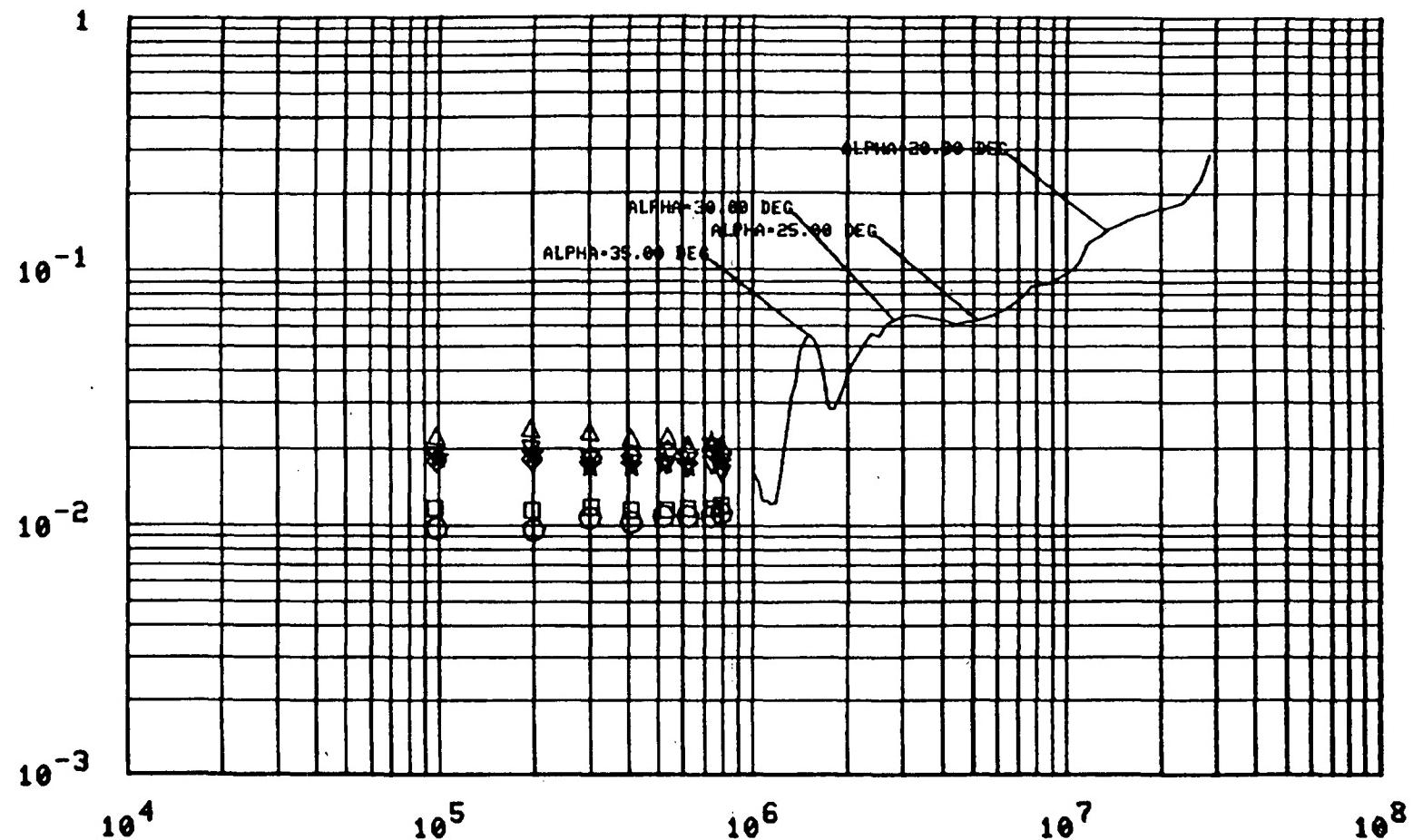


01/12/84
BASE TIME - 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9912A/H-REF 1065-1500 SEC



REYNOLDS NUMBER (NS)

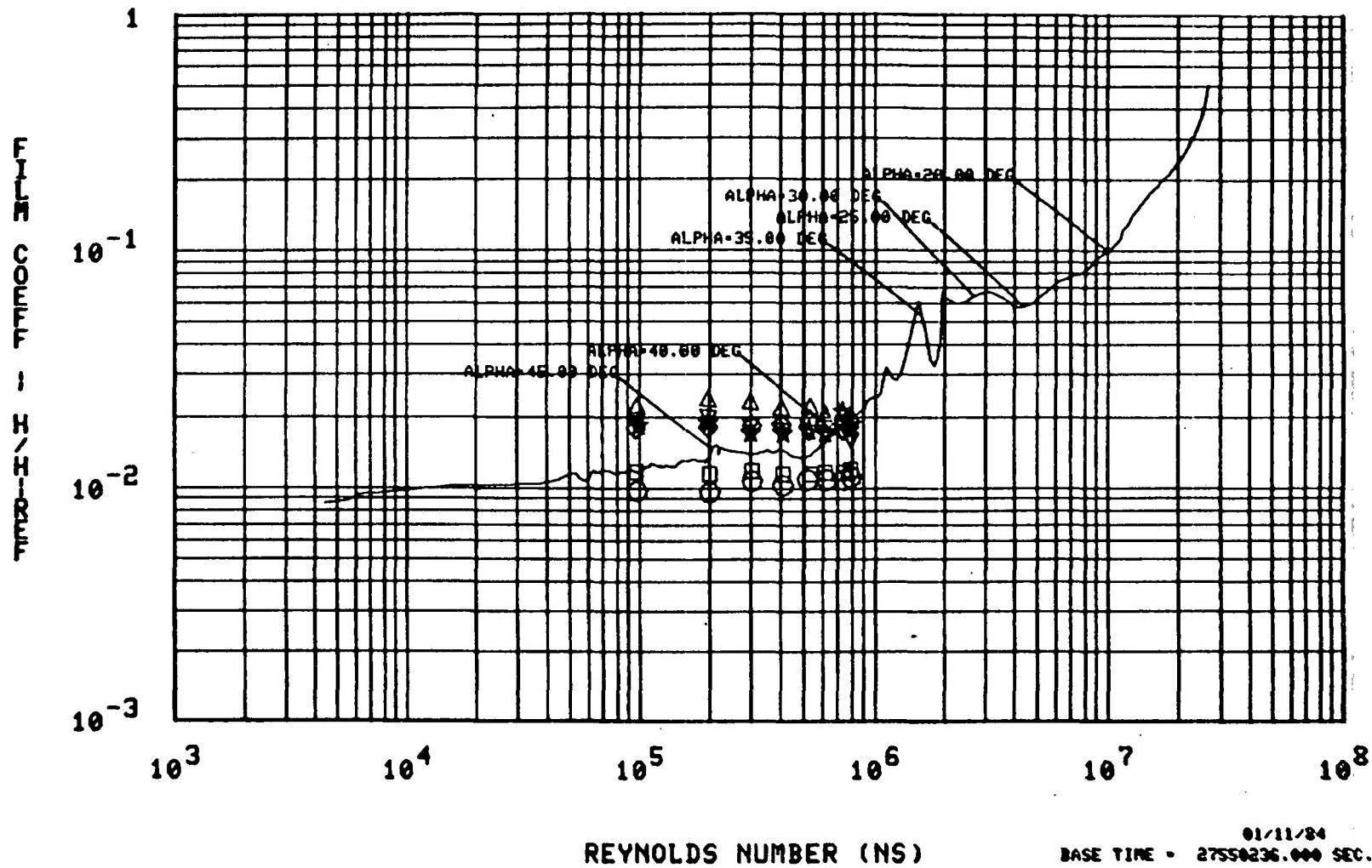
01/21/84
BASE TIME • 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

VE7T9912A/H-REF 200-1530 SEC



B-412

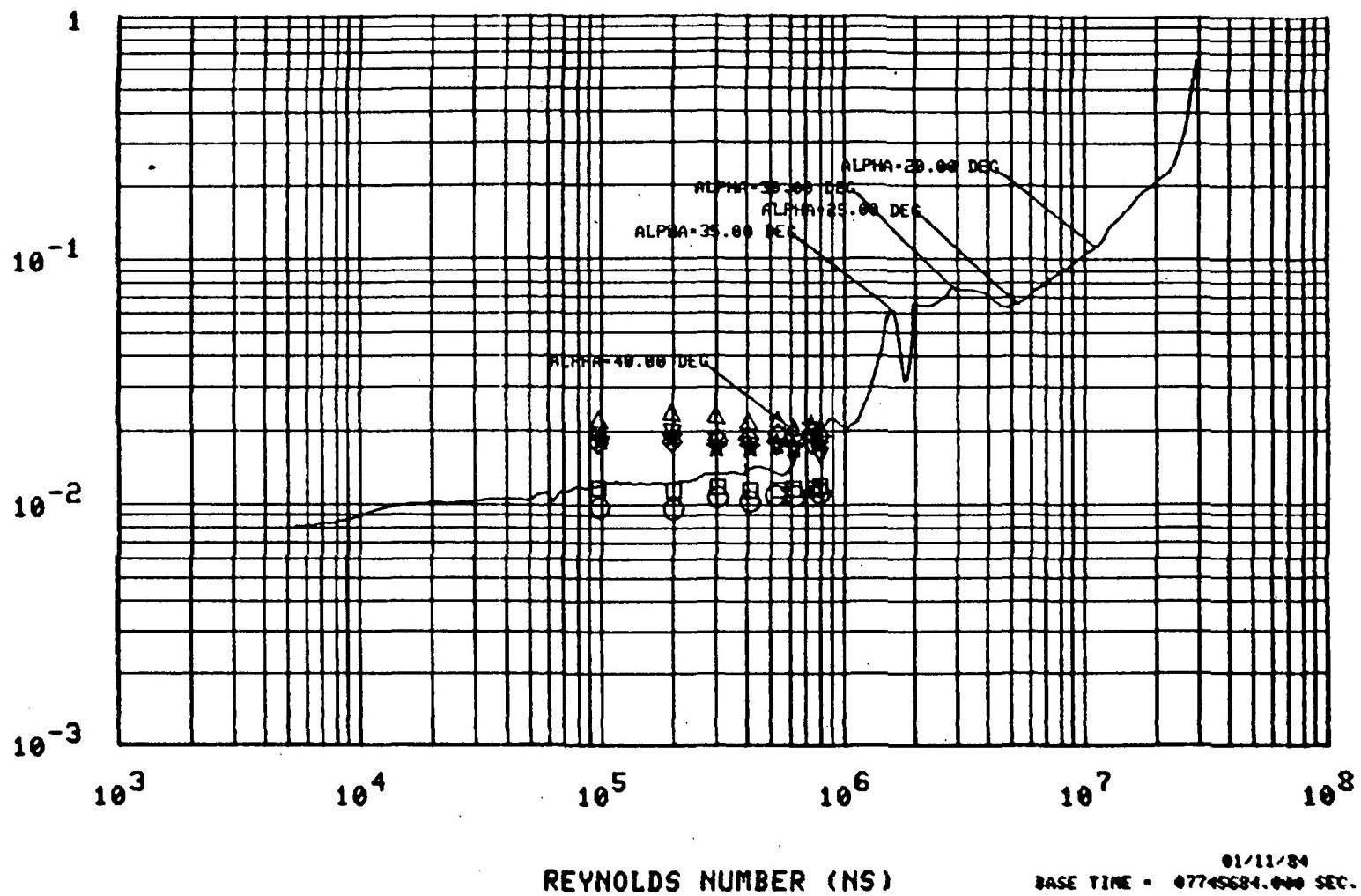
STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U87T9912A/H-REF 200-1440 SEC

LINE DRAWINGS - H/H-Area



B-413

REYNOLDS NUMBER (NS)

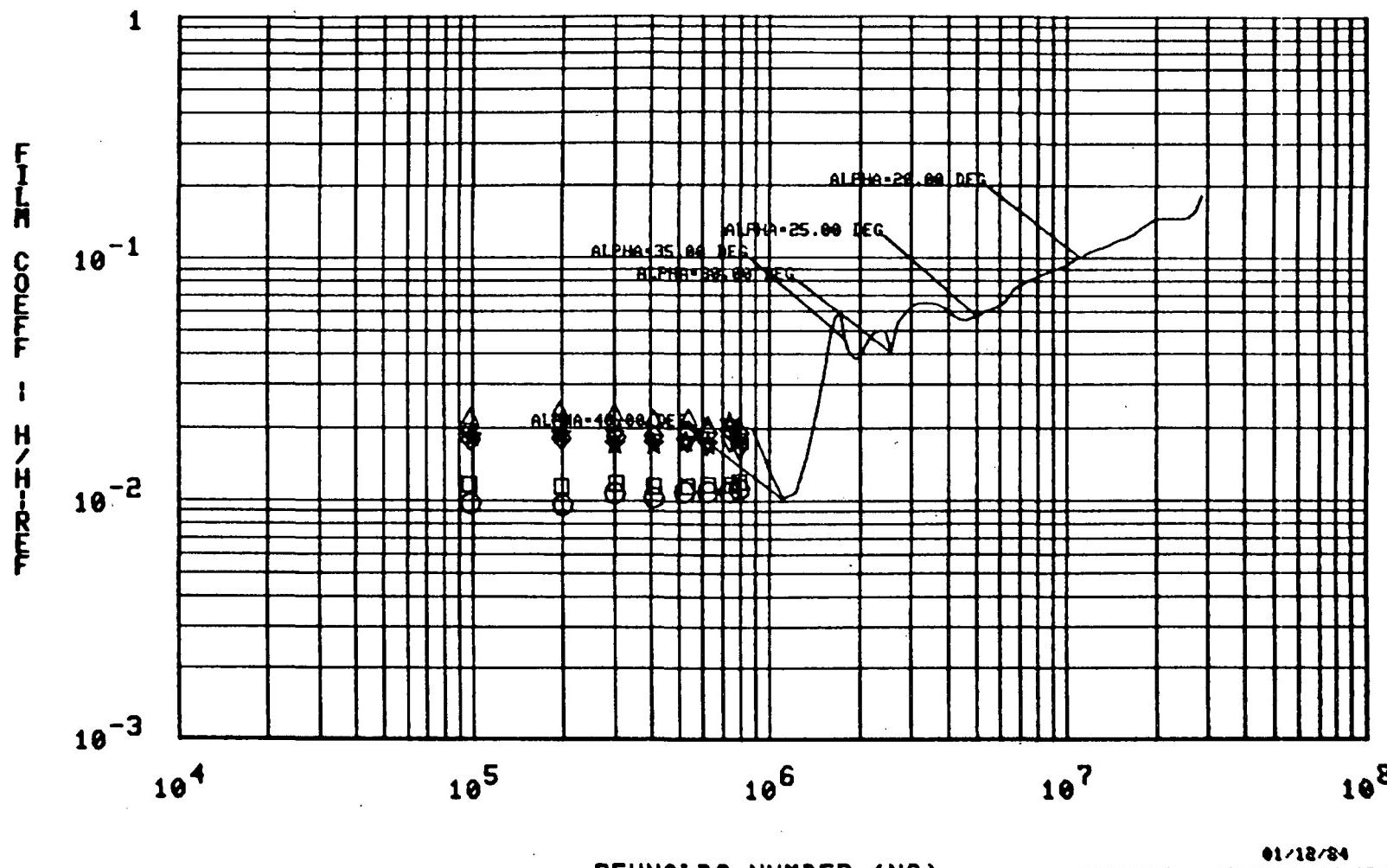
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

○□◇◆△★

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9912A/H-REF 965-1360 SEC



B-414

REYNOLDS NUMBER (NS)

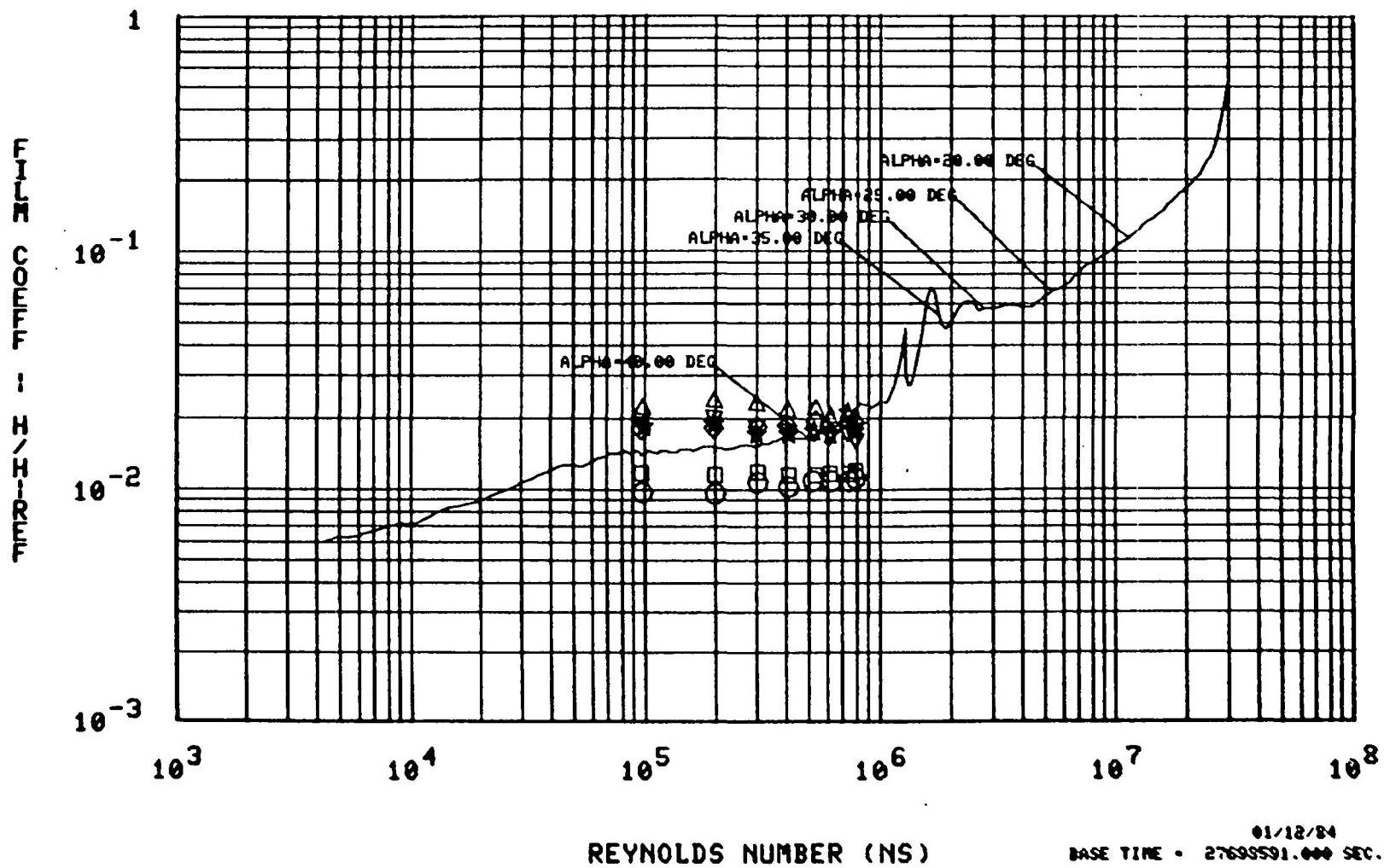
01/18/84
BASE TIME = 10040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9912A/H-REF 150-1430 SEC



B-415

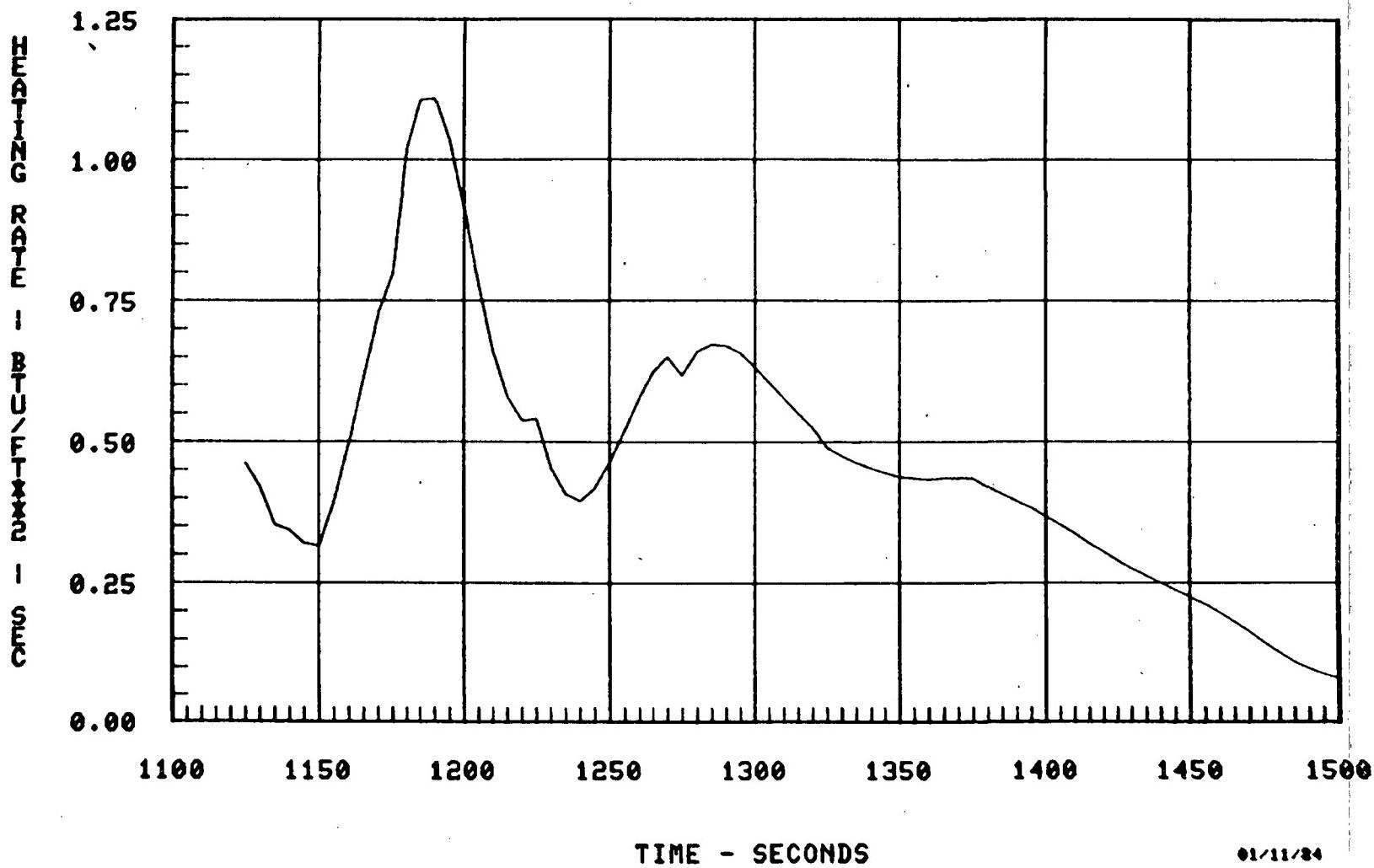
REYNOLDS NUMBER (NS)

01/12/84

BASE TIME = 27699591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

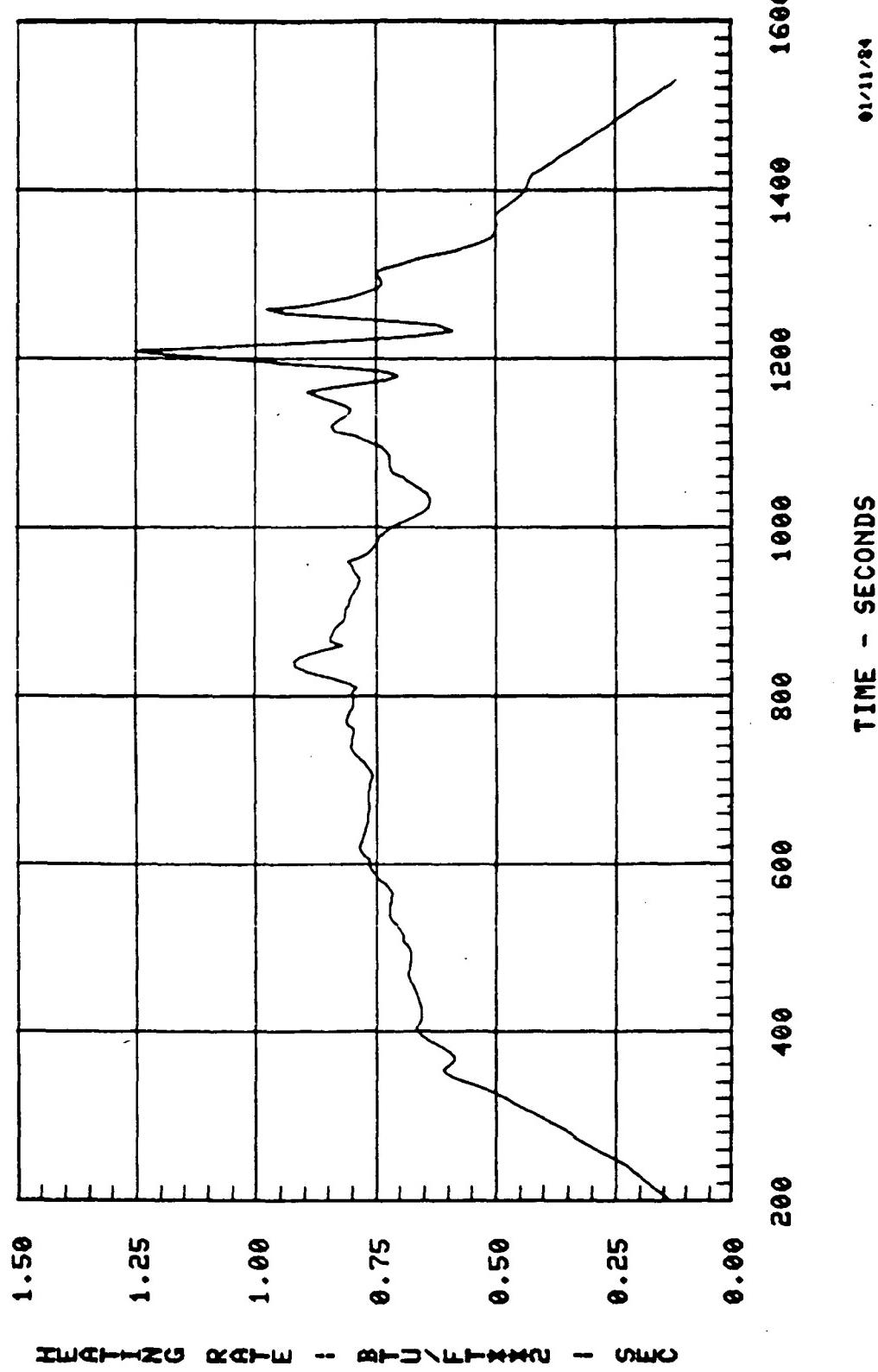
U07T9912A



01/11/84

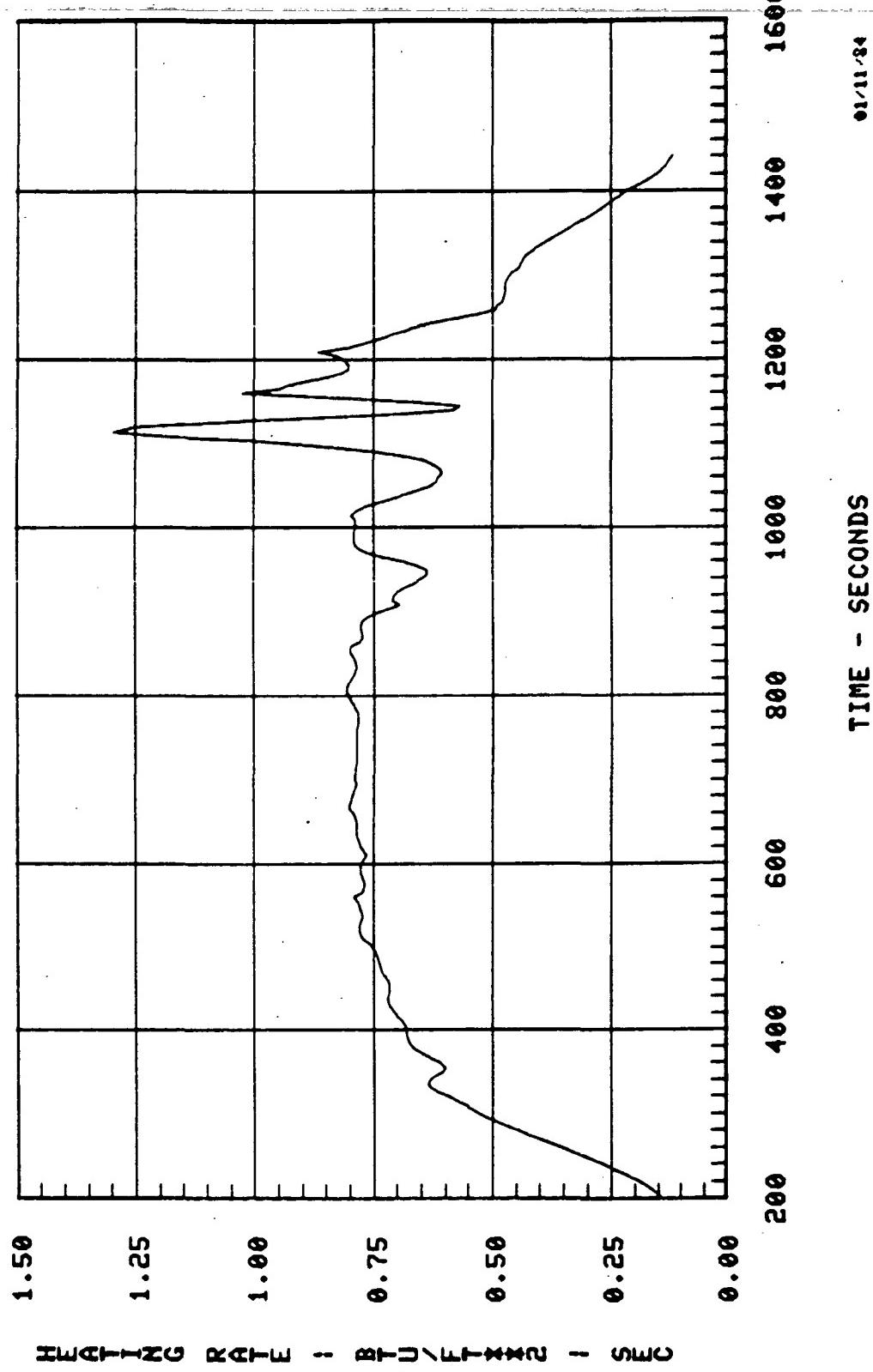
STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

00779912A



STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

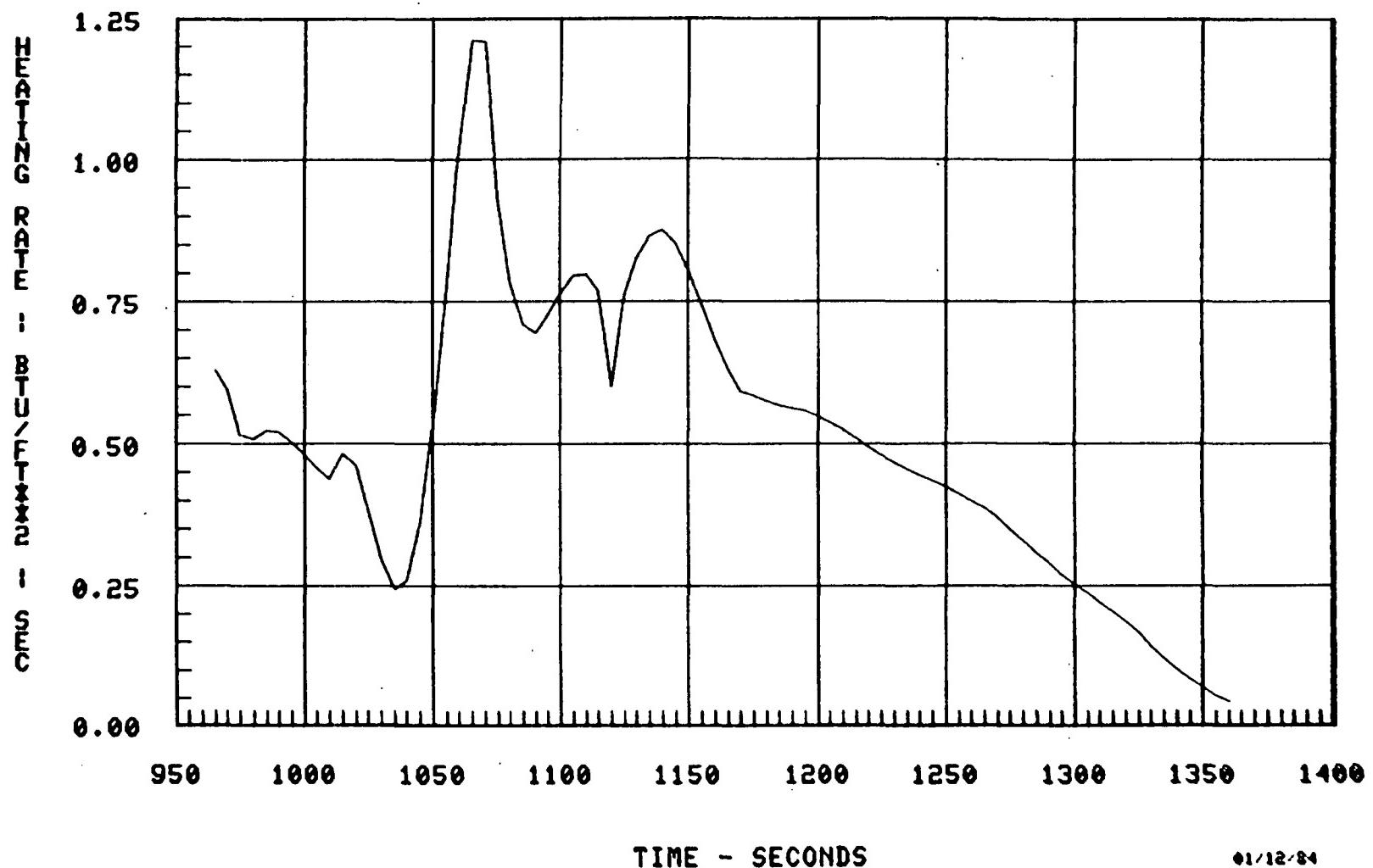
U87T9912A



STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

U07T9912A

B-419

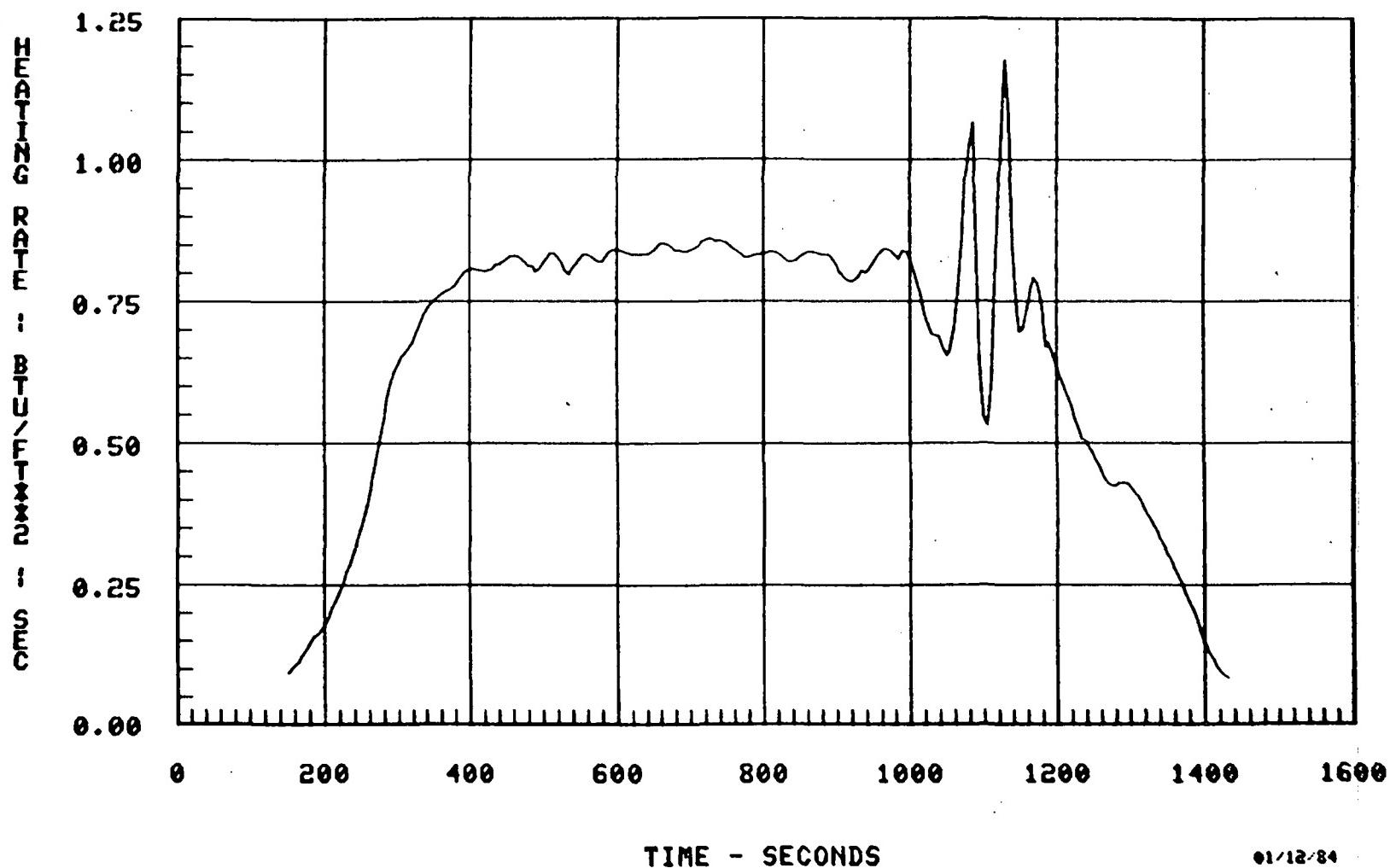


TIME - SECONDS

01/12/84

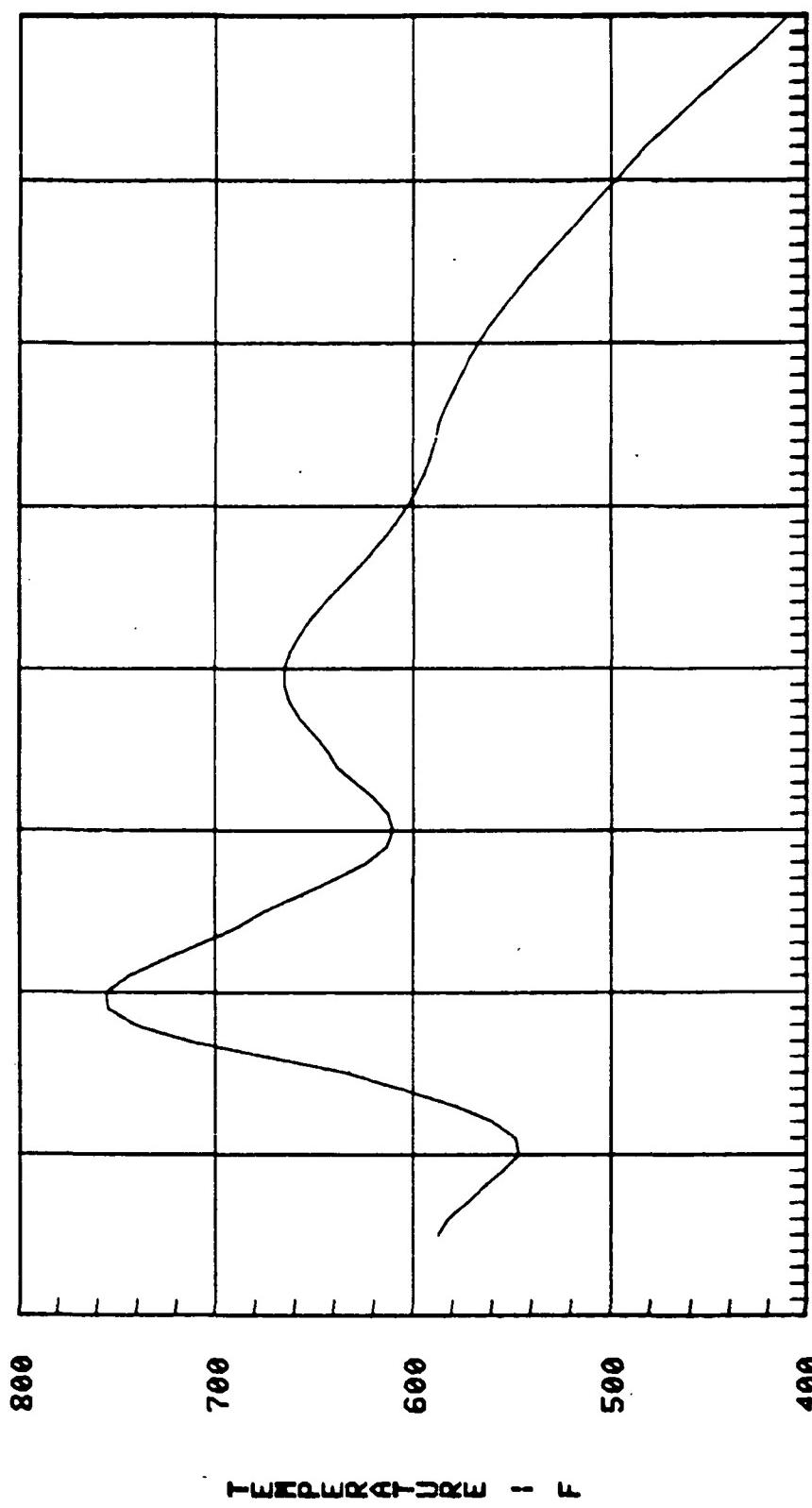
STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

U07T9912A



STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

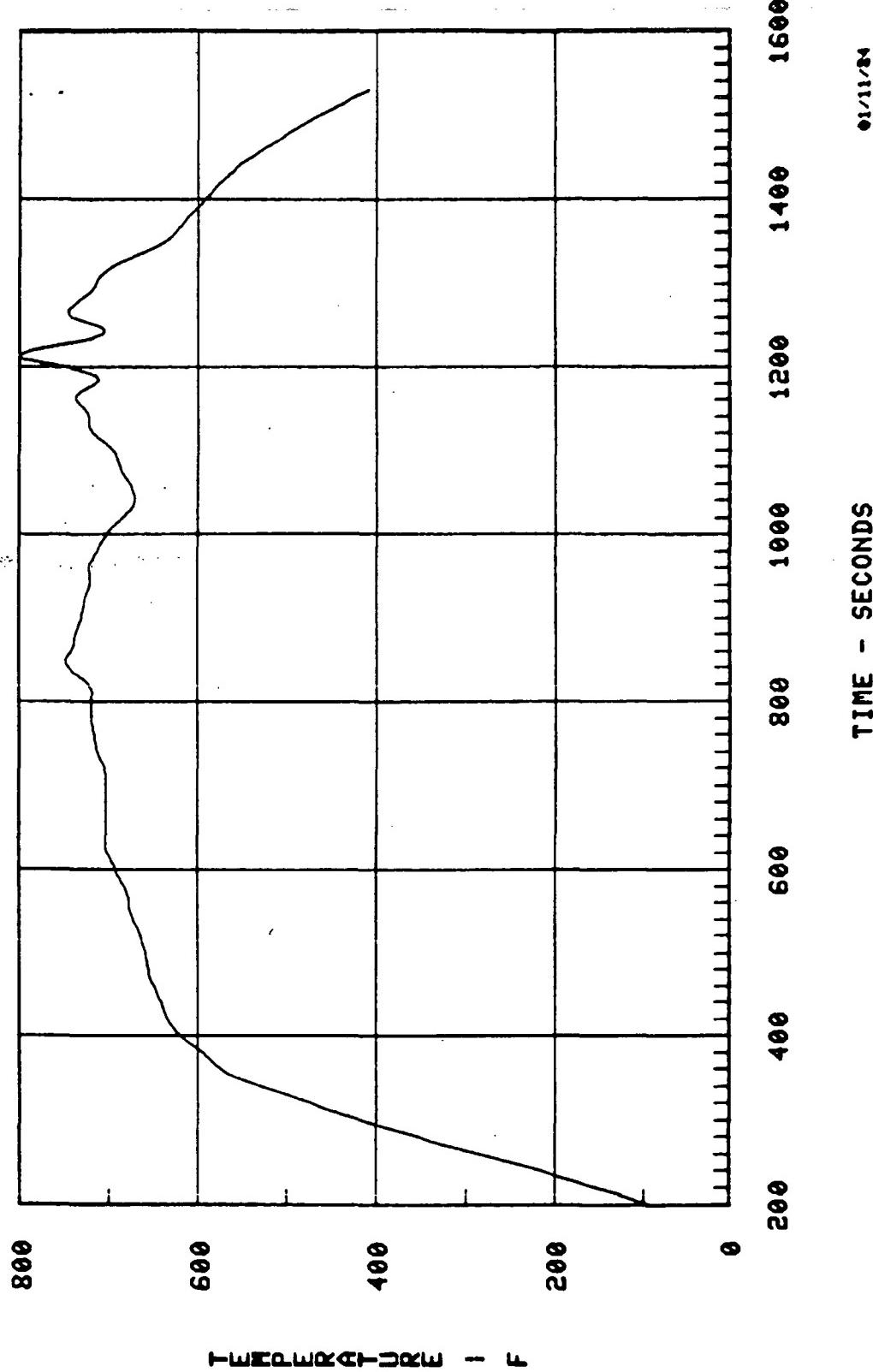
U6779912A



01/11/84

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

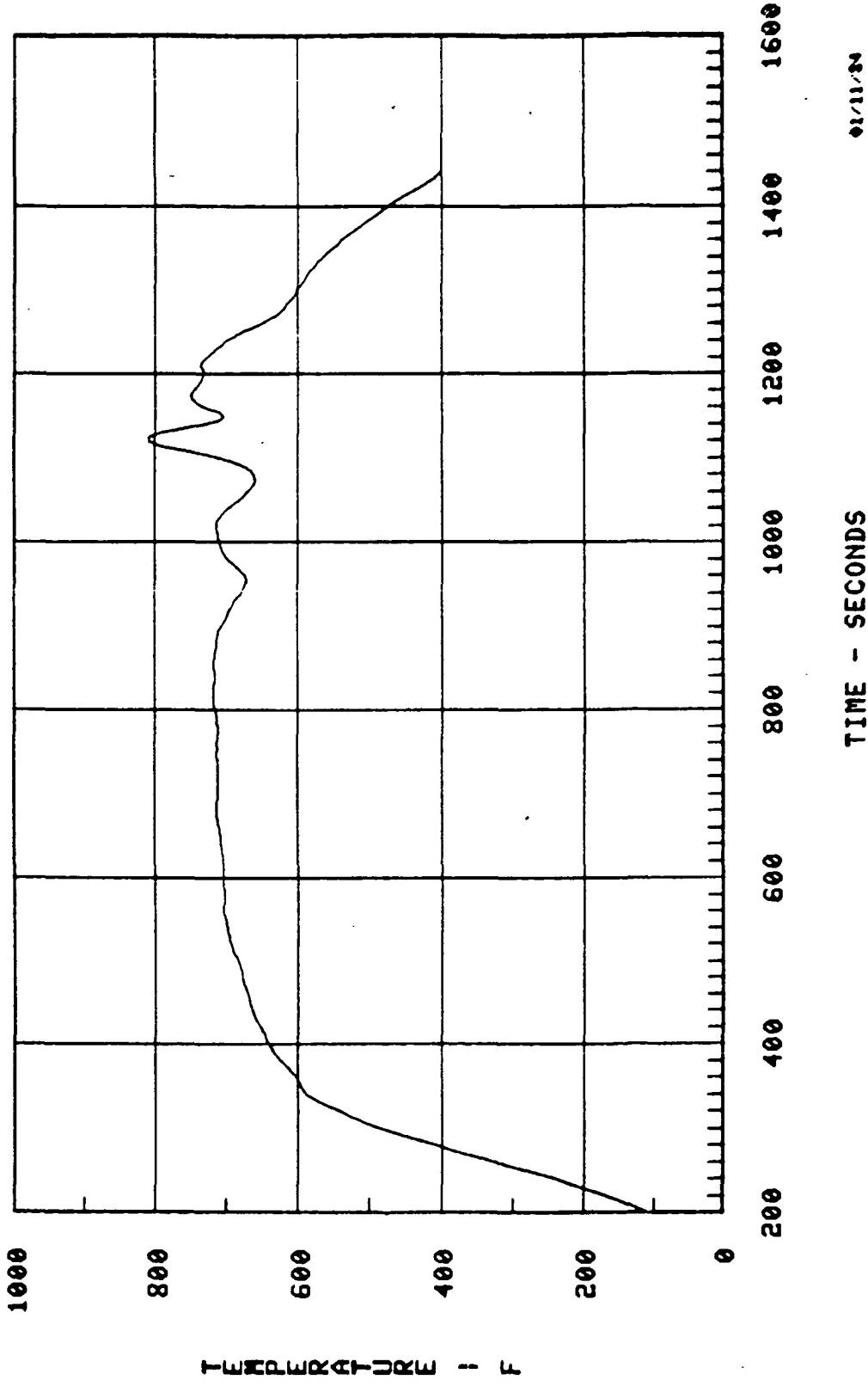
U07T9912A



B-422

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

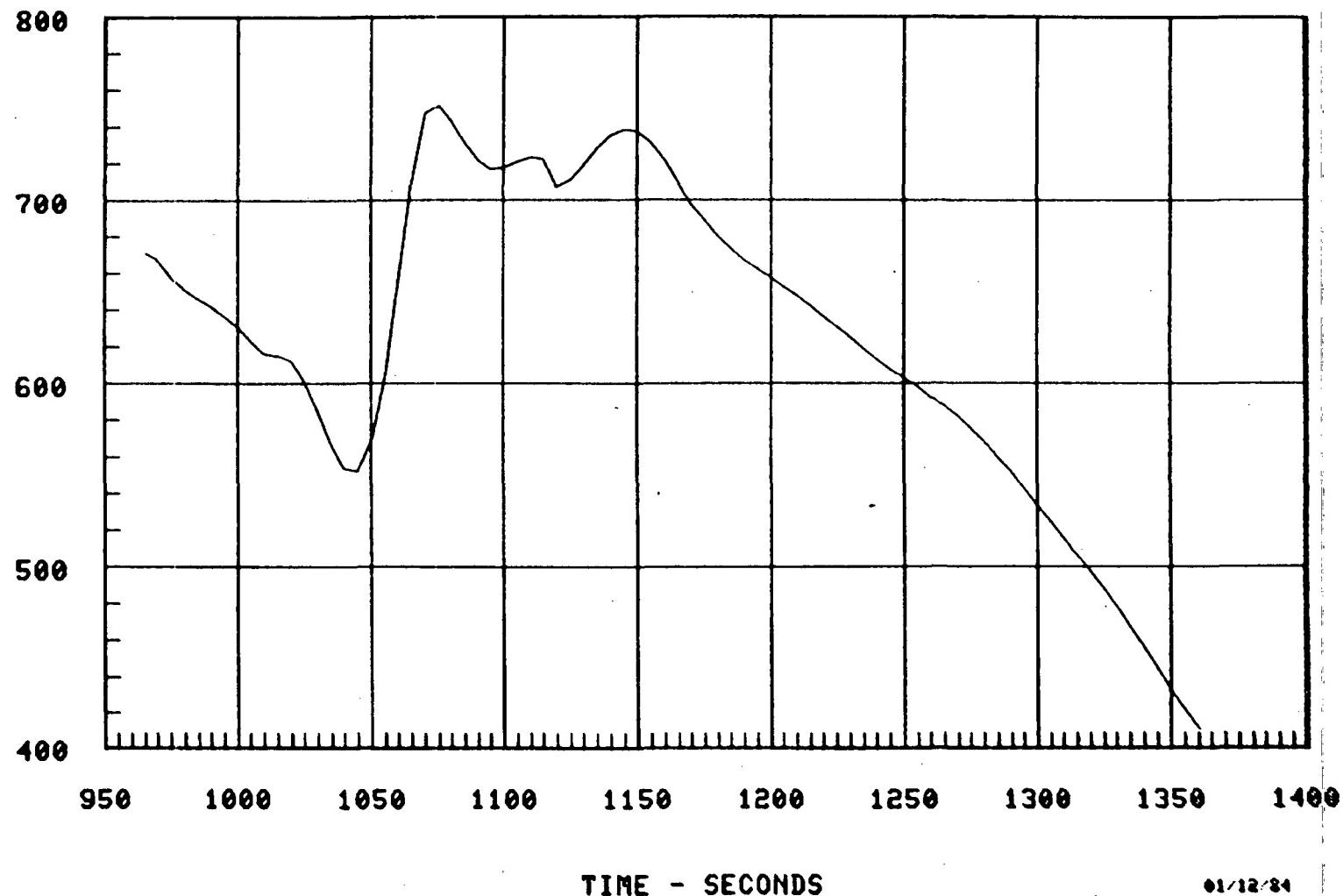
U0779912A



STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

U07T9912A

B-424

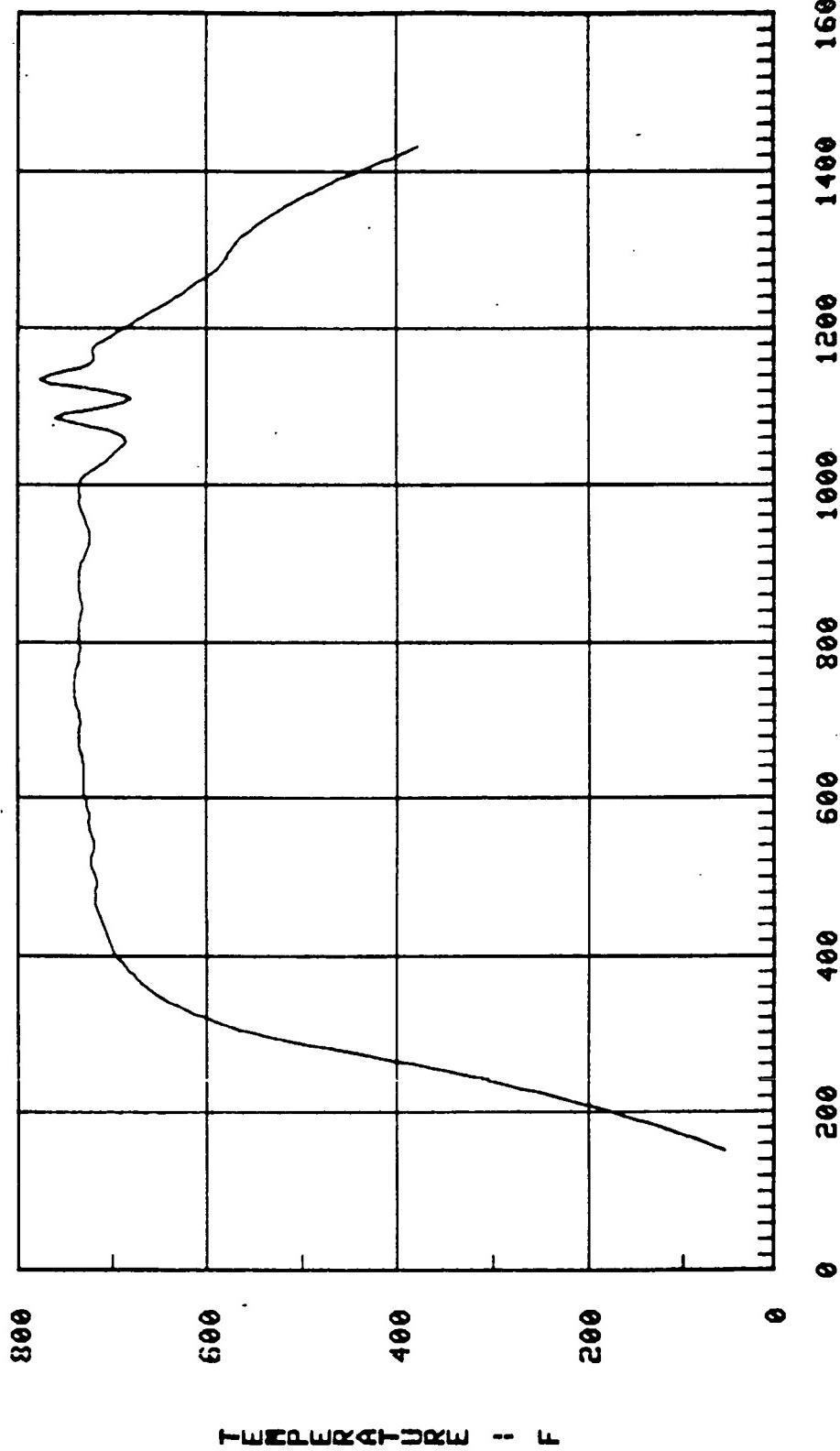


TIME - SECONDS

01/12/84

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.40) Z=440

U07T9912A



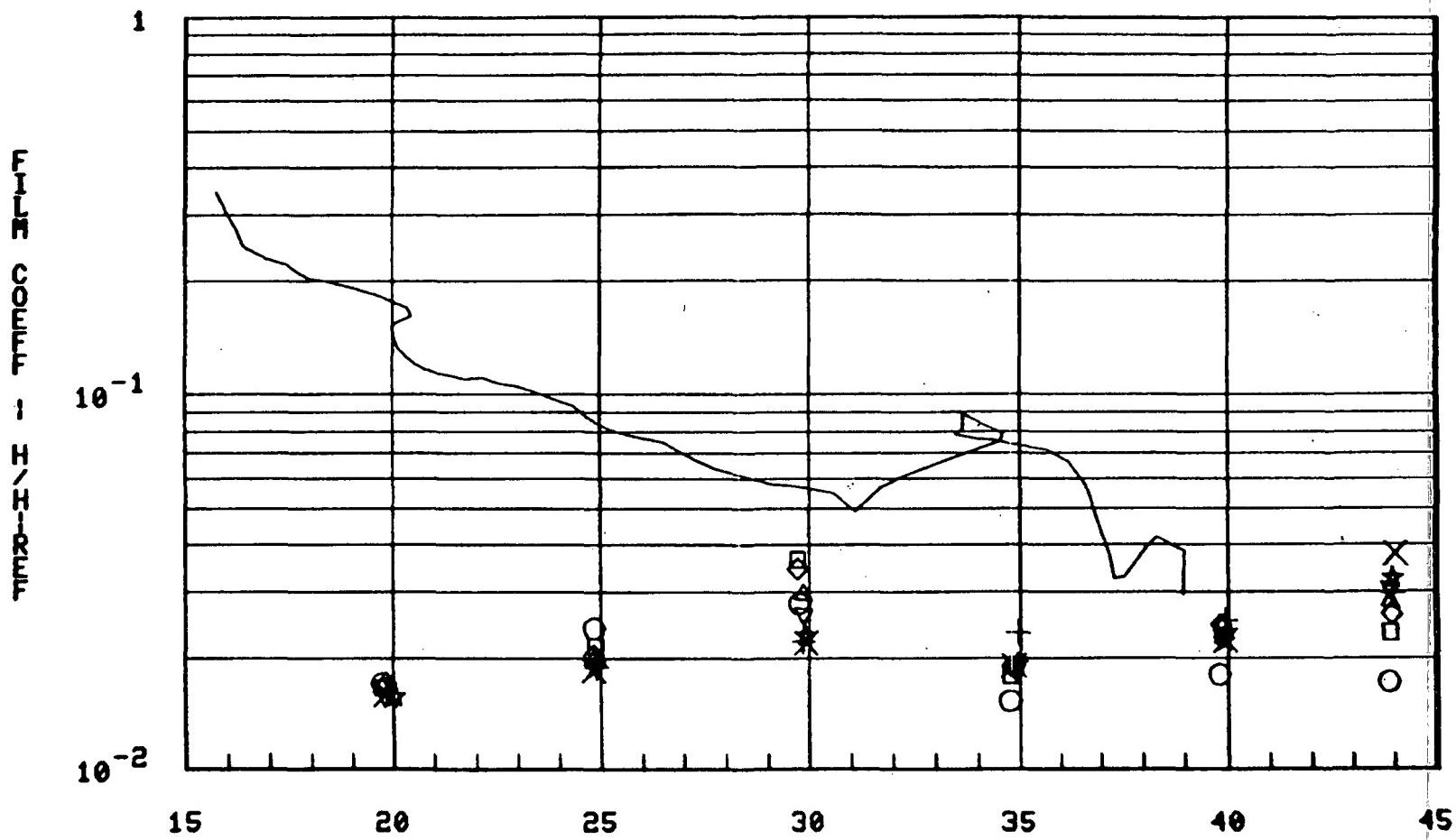
01/12/84

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

O □ ◇ △ ▲ ★ +

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9924A/H-REF 1065-1500 SEC



B-426

ANGLE-OF-ATTACK - DEG

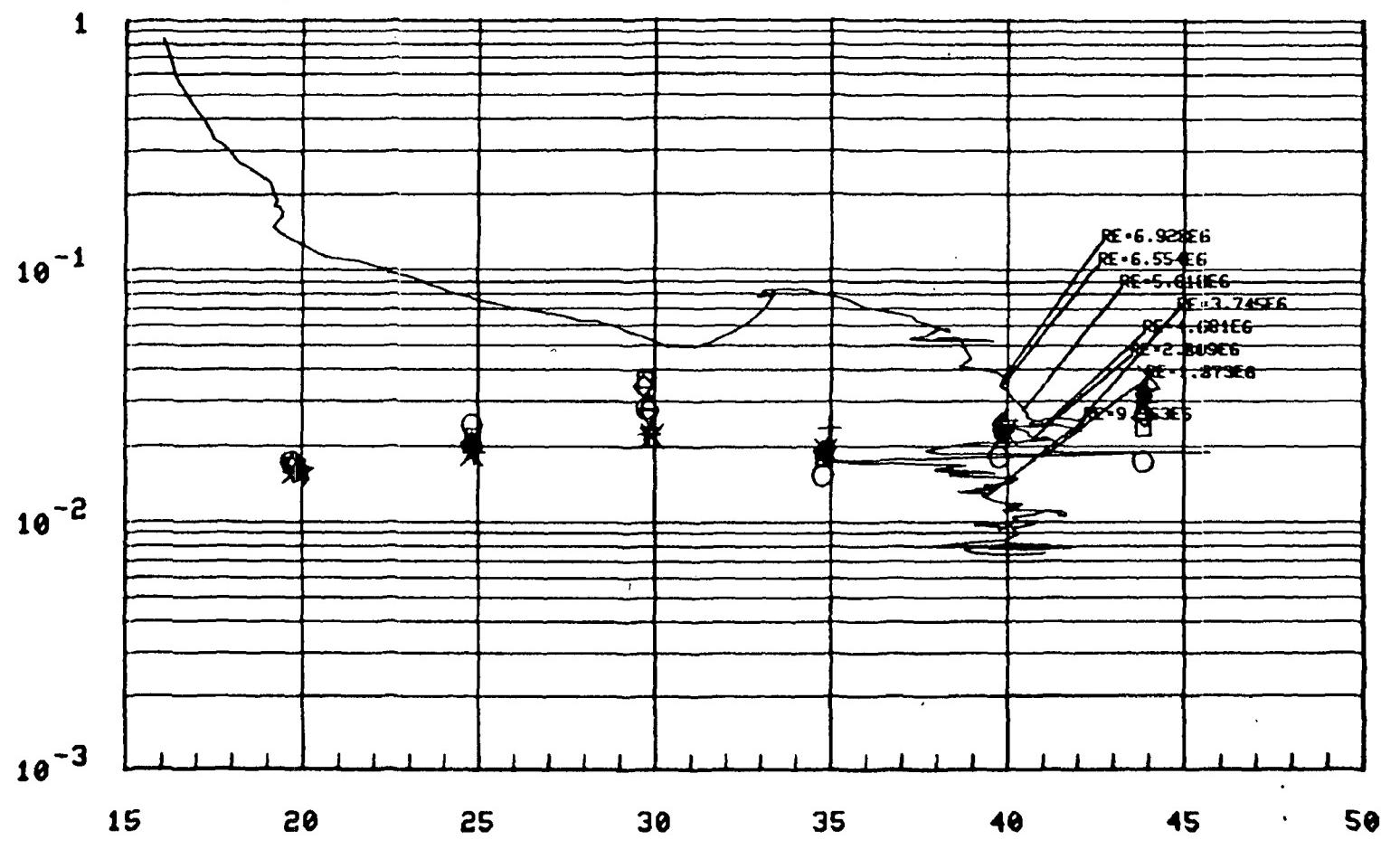
01/11/84
 BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9924A/H-REF 200-1530 SEC

O \square \diamond \triangleright \star + X



B-427

ANGLE-OF-ATTACK - DEG

01/11/84

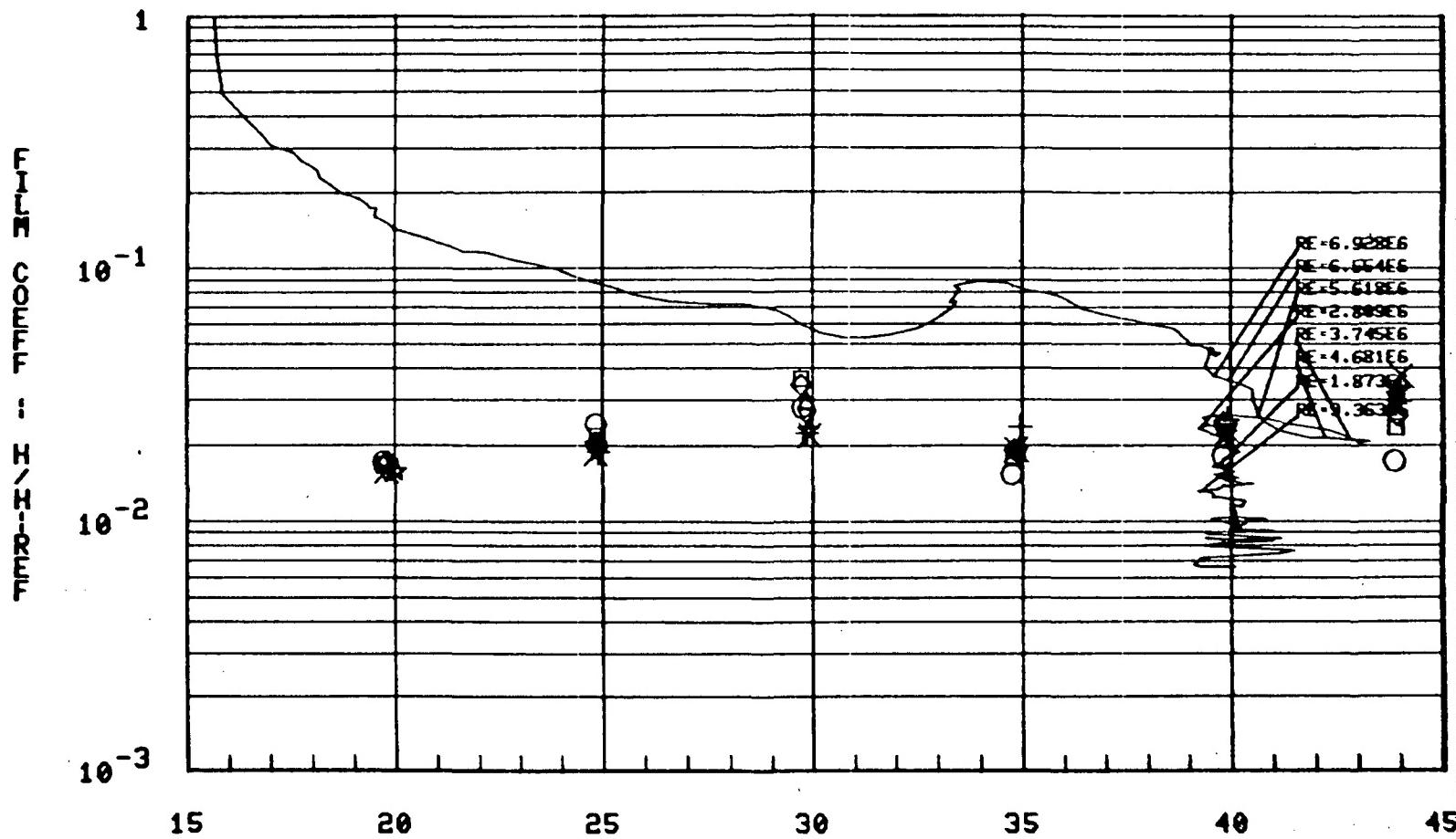
BASE TIME = 27550336.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

○ □ ◇ △ ▲ ★ ✕

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9924A/H-REF 200-1440 SEC



B-428

ANGLE-OF-ATTACK - DEG

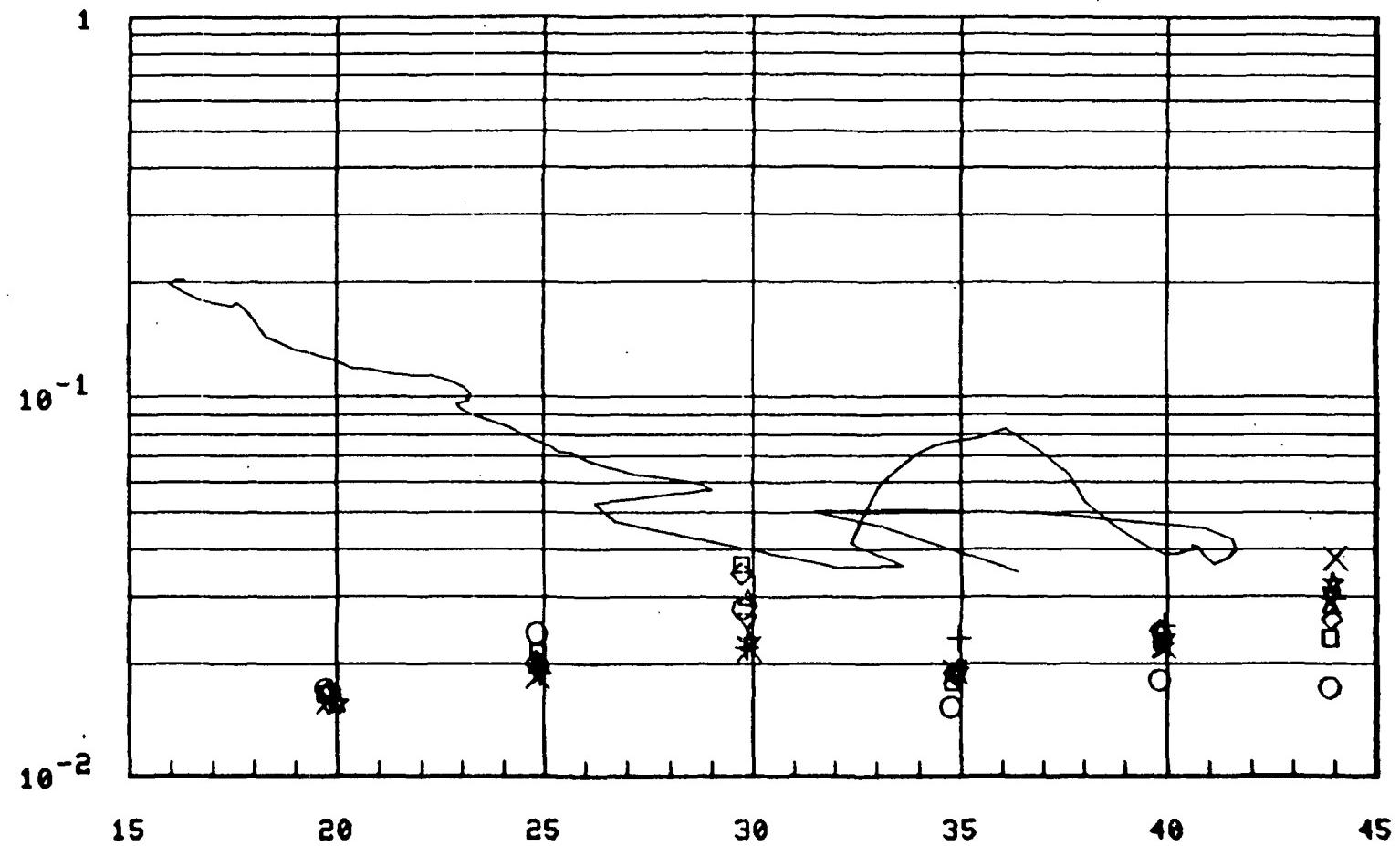
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U07T9924A/H-REF 965-1360 SEC

O □ × △ ★ + X



B-429

01/12/84
ANGLE-OF-ATTACK - DEG

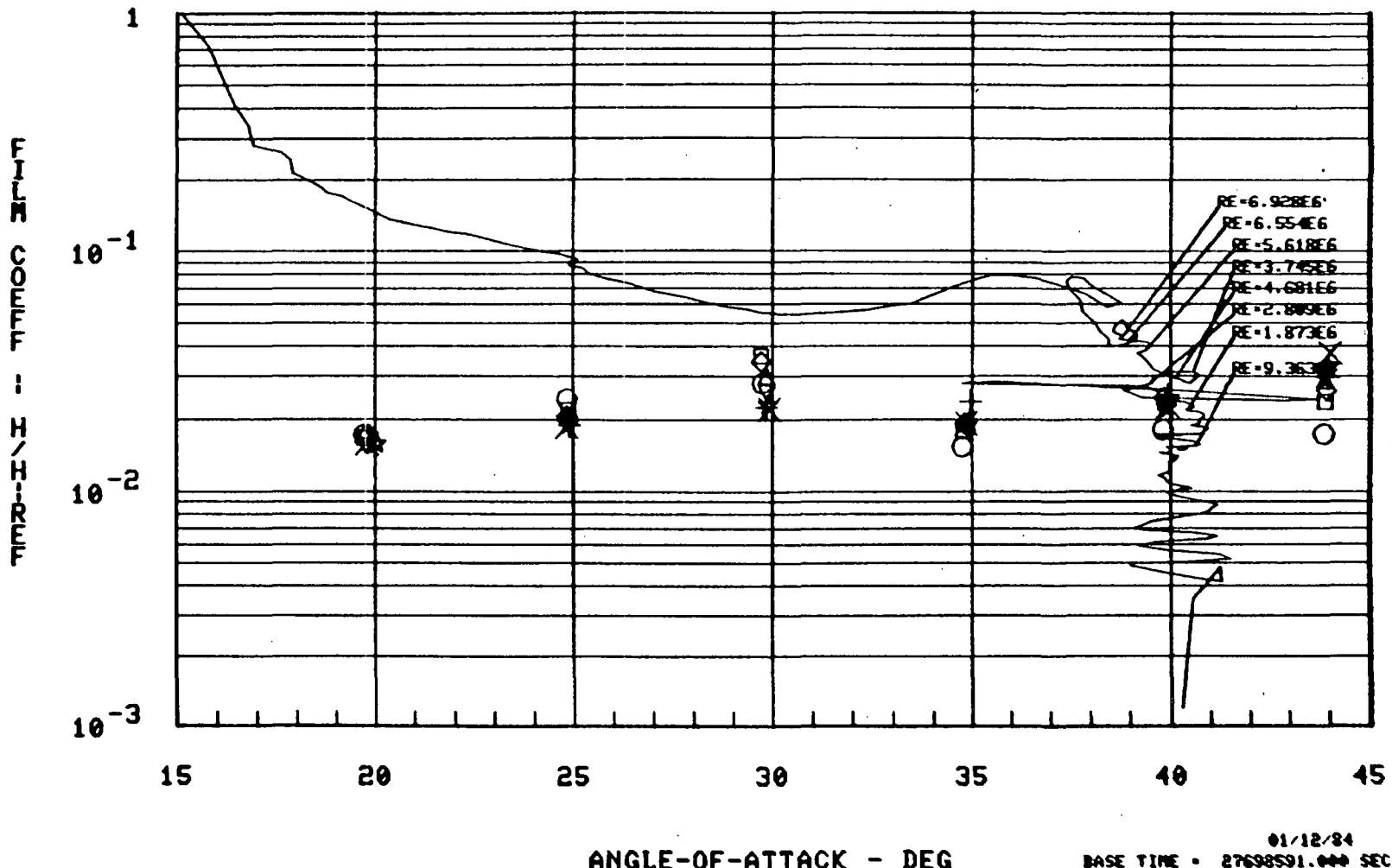
BASE TIME = 16040483.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9924A/H-REF 150-1430 SEC

O □ ◇ △ ★ + X

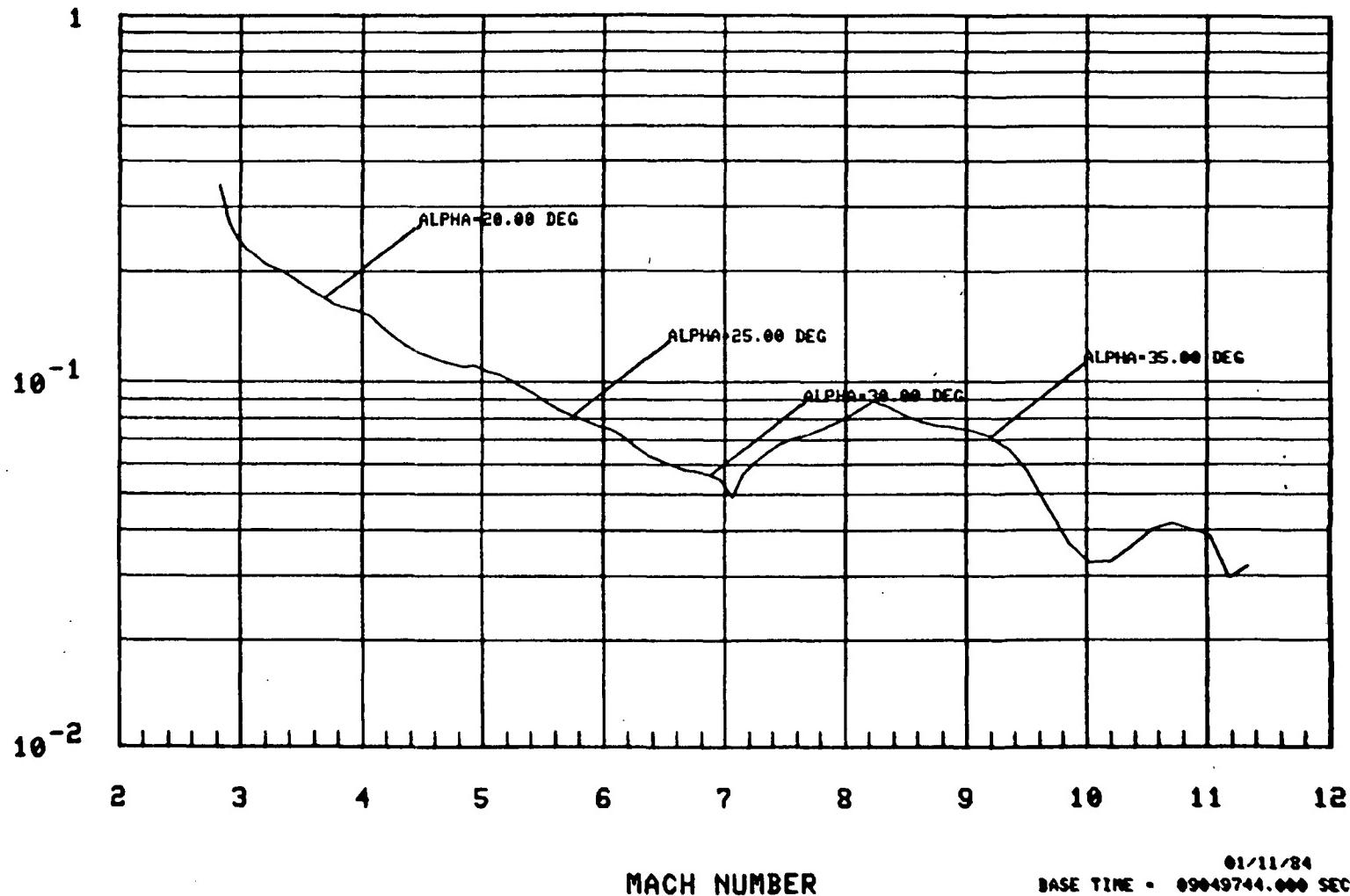


STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U07T9924A/H-REF 1065-1500 SEC

LINE DRAWINGS - HISTORICAL

B-431

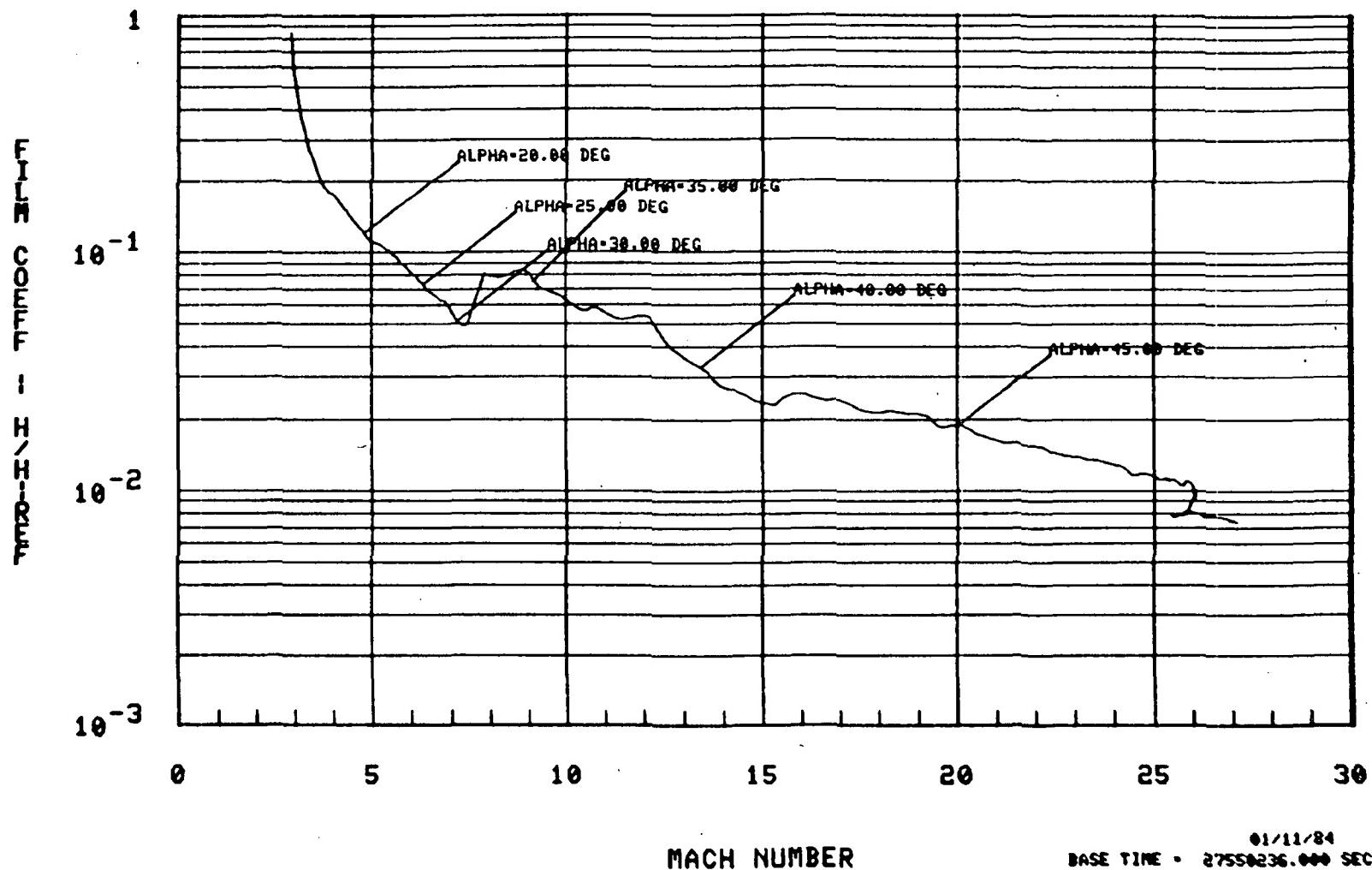


MACH NUMBER

01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U87T9924A/H-REF 200-1530 SEC

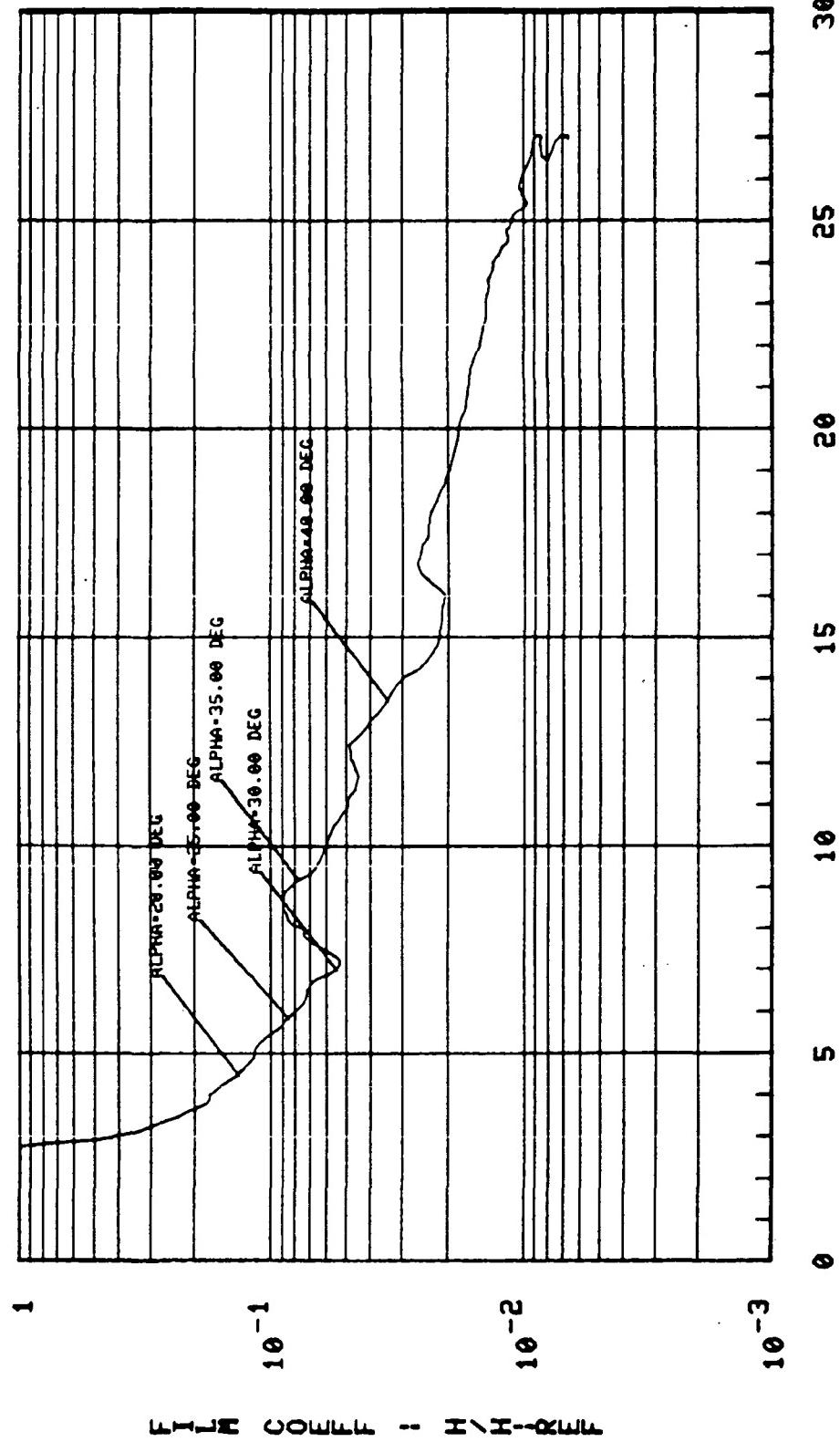


B-432

01/11/84
BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U0779924A/H-REF 200-1440 SEC

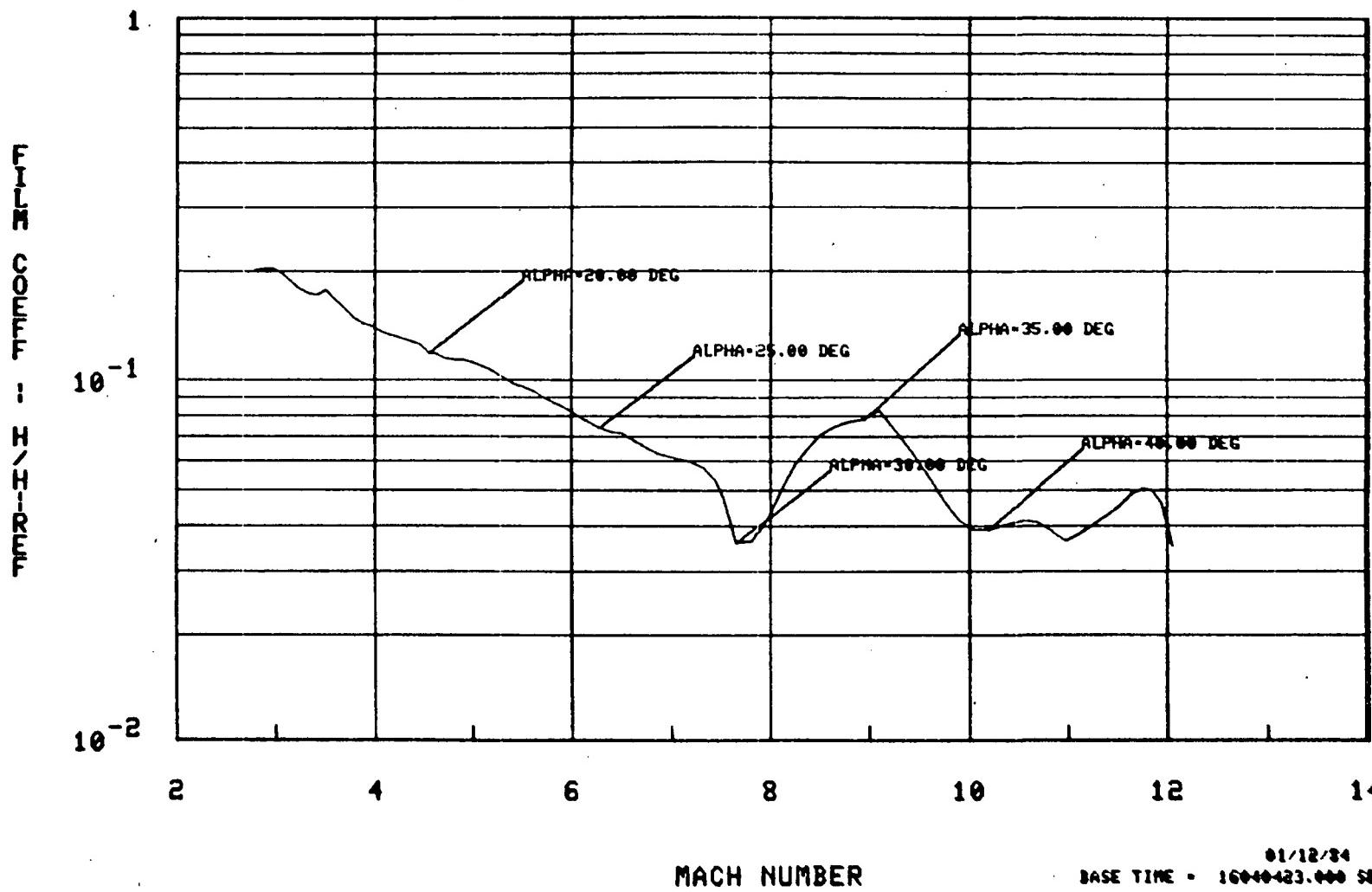


B-433

MACH NUMBER
01/11/84
BASE TIME • 07745584.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U07T9924A/H-REF 965-1360 SEC

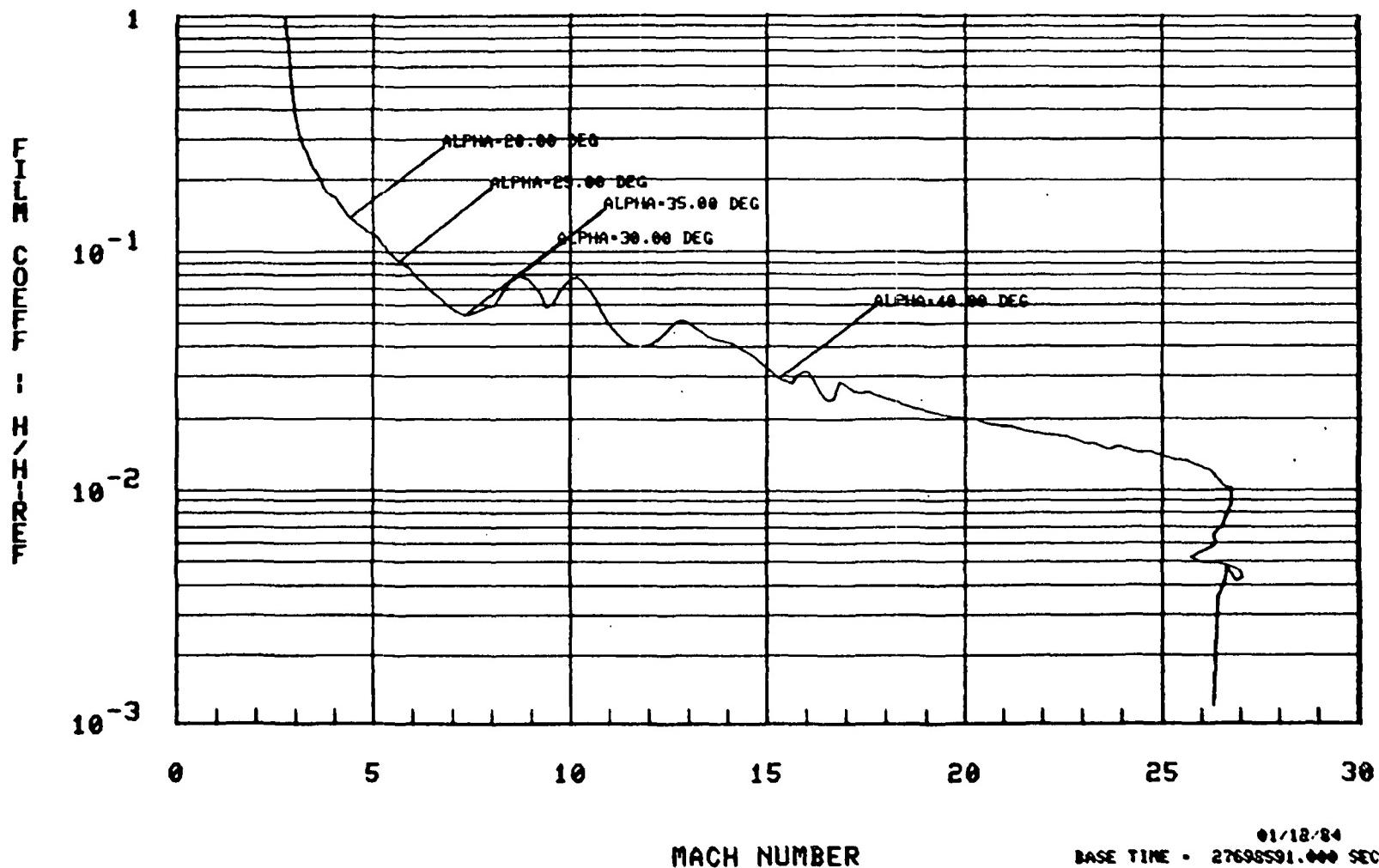


01/12/84

BASE TIME - 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U07T9924A/H-REF 150-1430 SEC



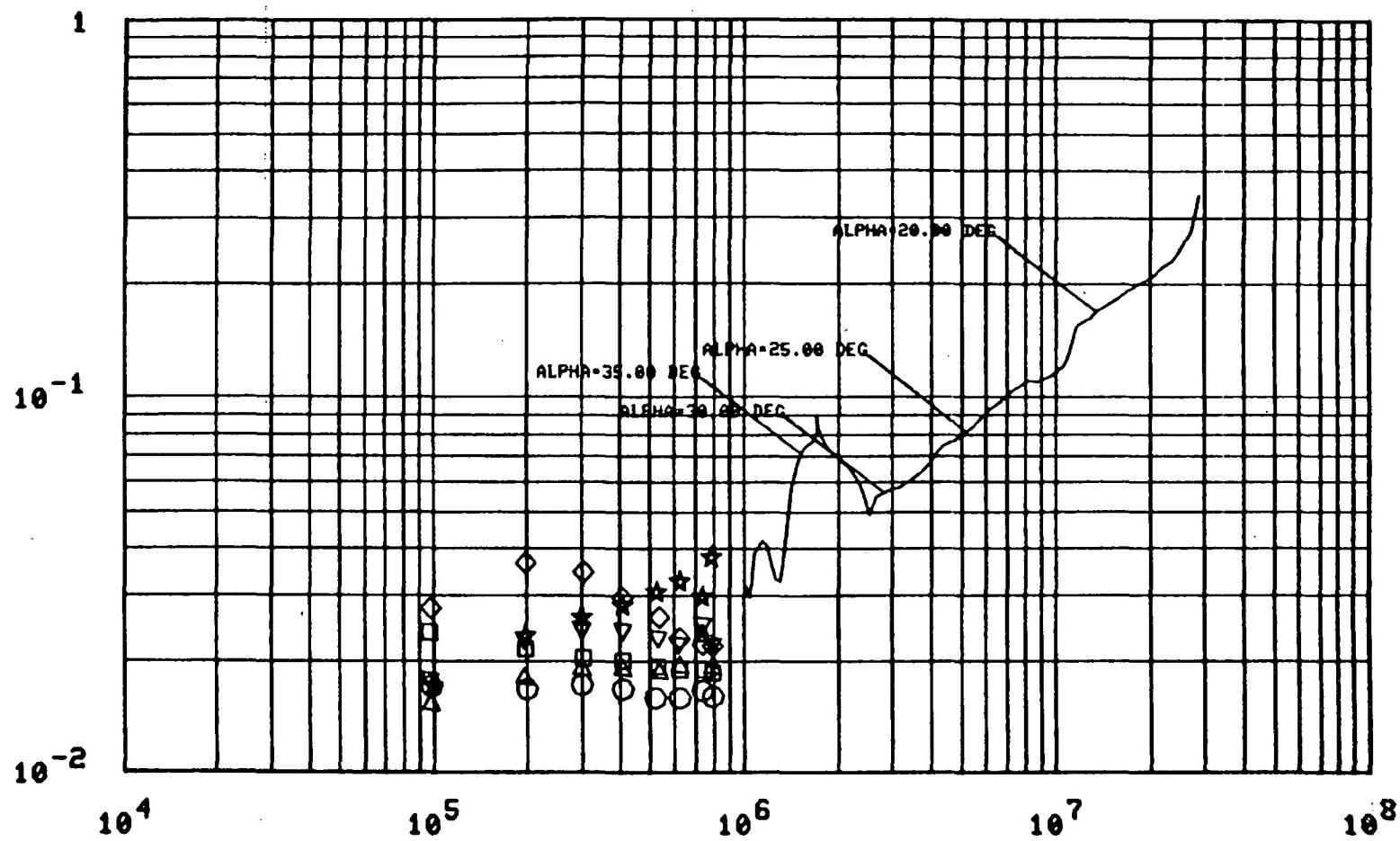
01/12/84

BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

V07T9924A/H-REF 1065-1500 SEC



B-436

REYNOLDS NUMBER (NS)

01/11/84
BASE TIME = 09049744.000 SEC.

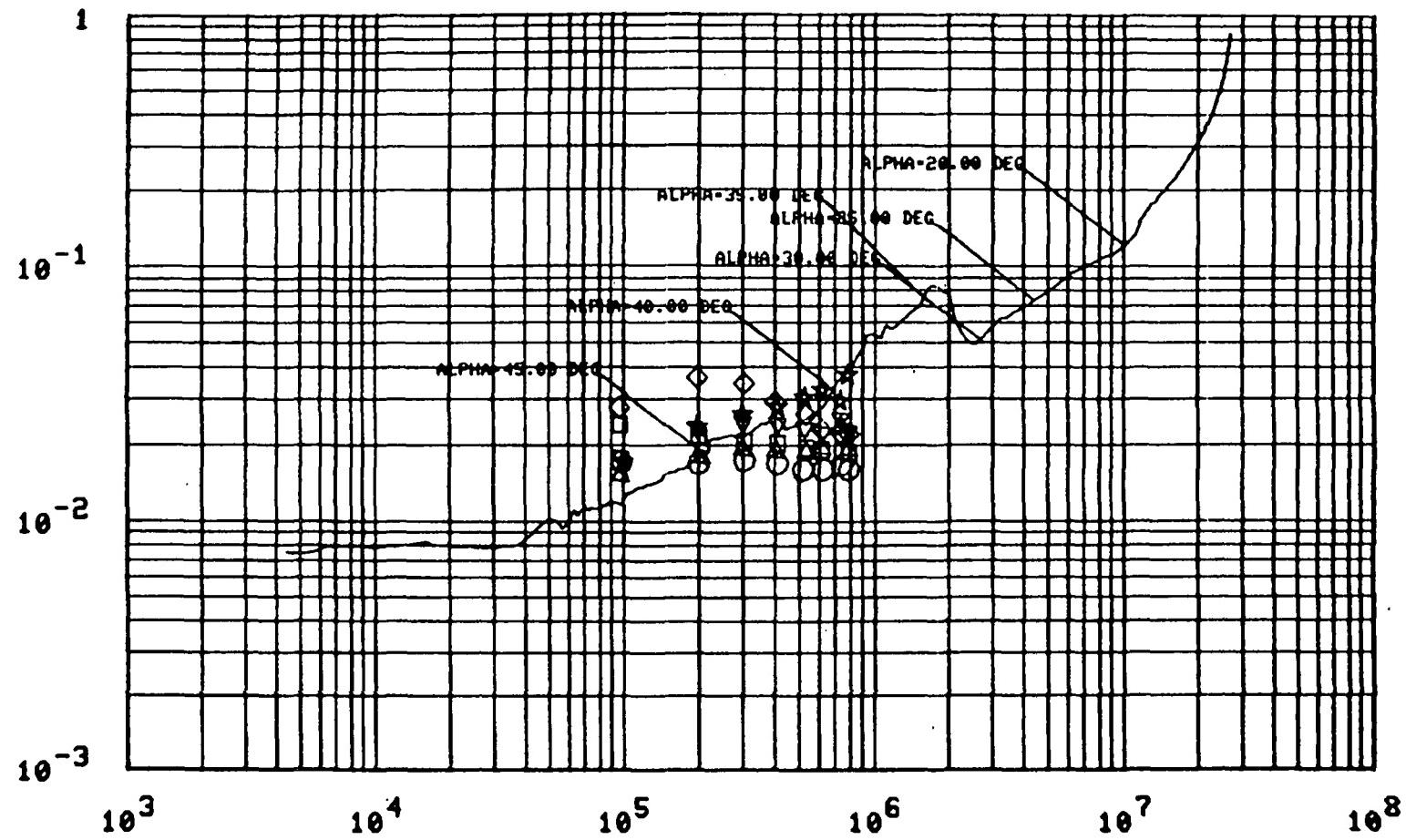
STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

○ □ △ ▽ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T8924A/H-REF 200-1530 SEC

FILE CODE : H/H-RM11



B-437

REYNOLDS NUMBER (Re)

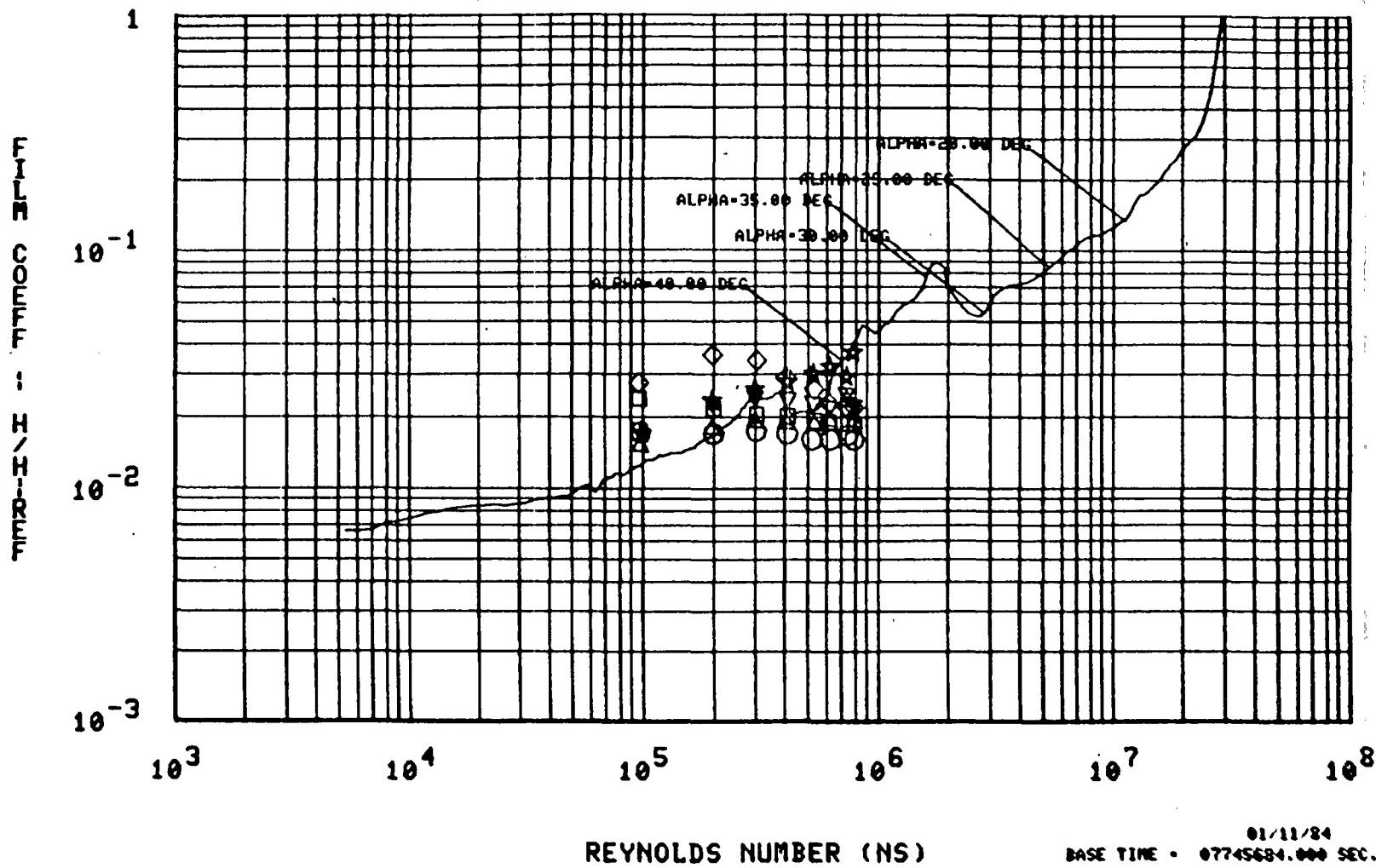
01/11/84
 BASE TIME = 27550236.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9924A/H-REF 200-1440 SEC



B-438

REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.000 SEC.

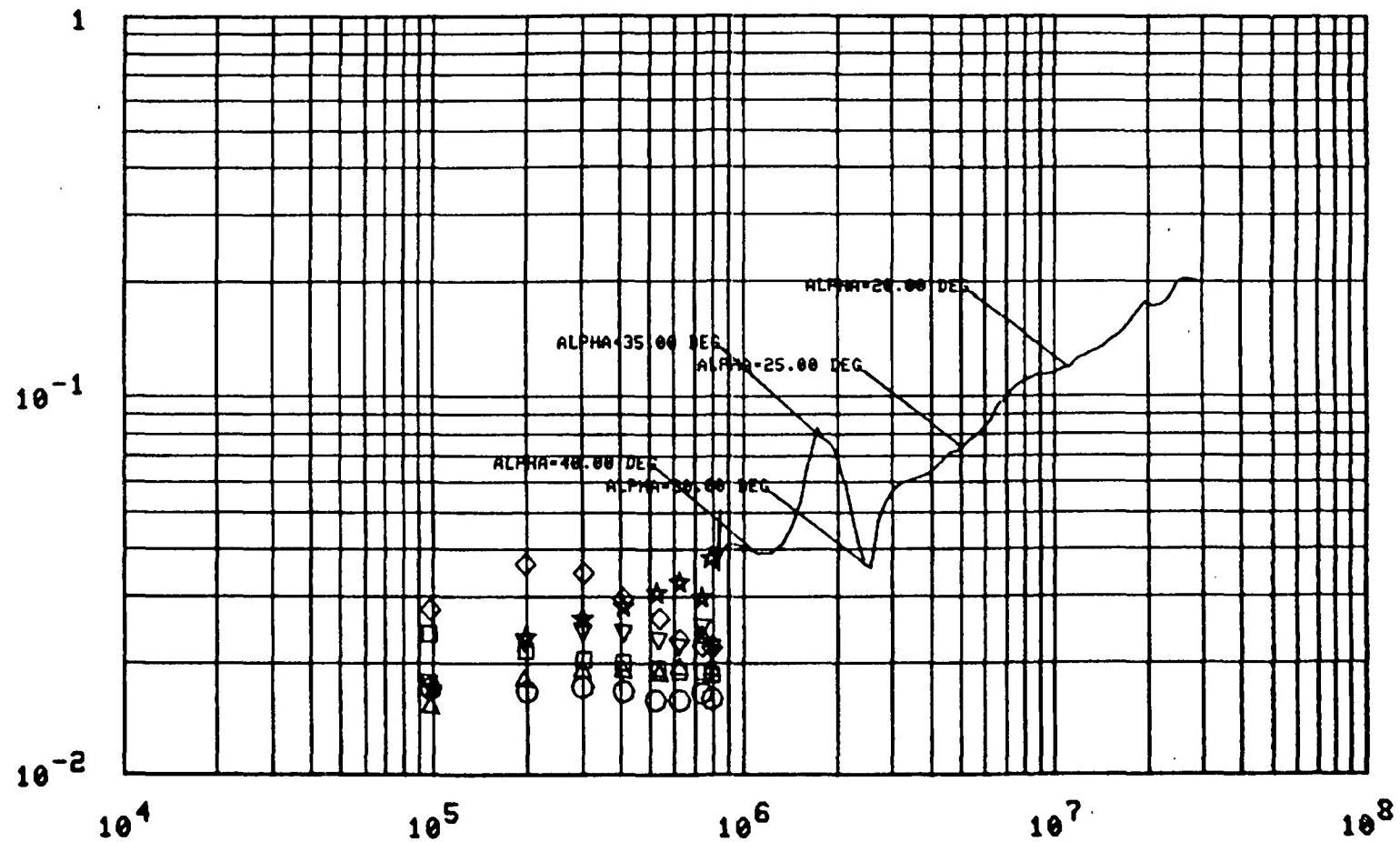
STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

○□◇△★

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9924A/H-REF 965-1360 SEC

LINE DRAWINGS - IN THIS PICTURE



REYNOLDS NUMBER (NS)

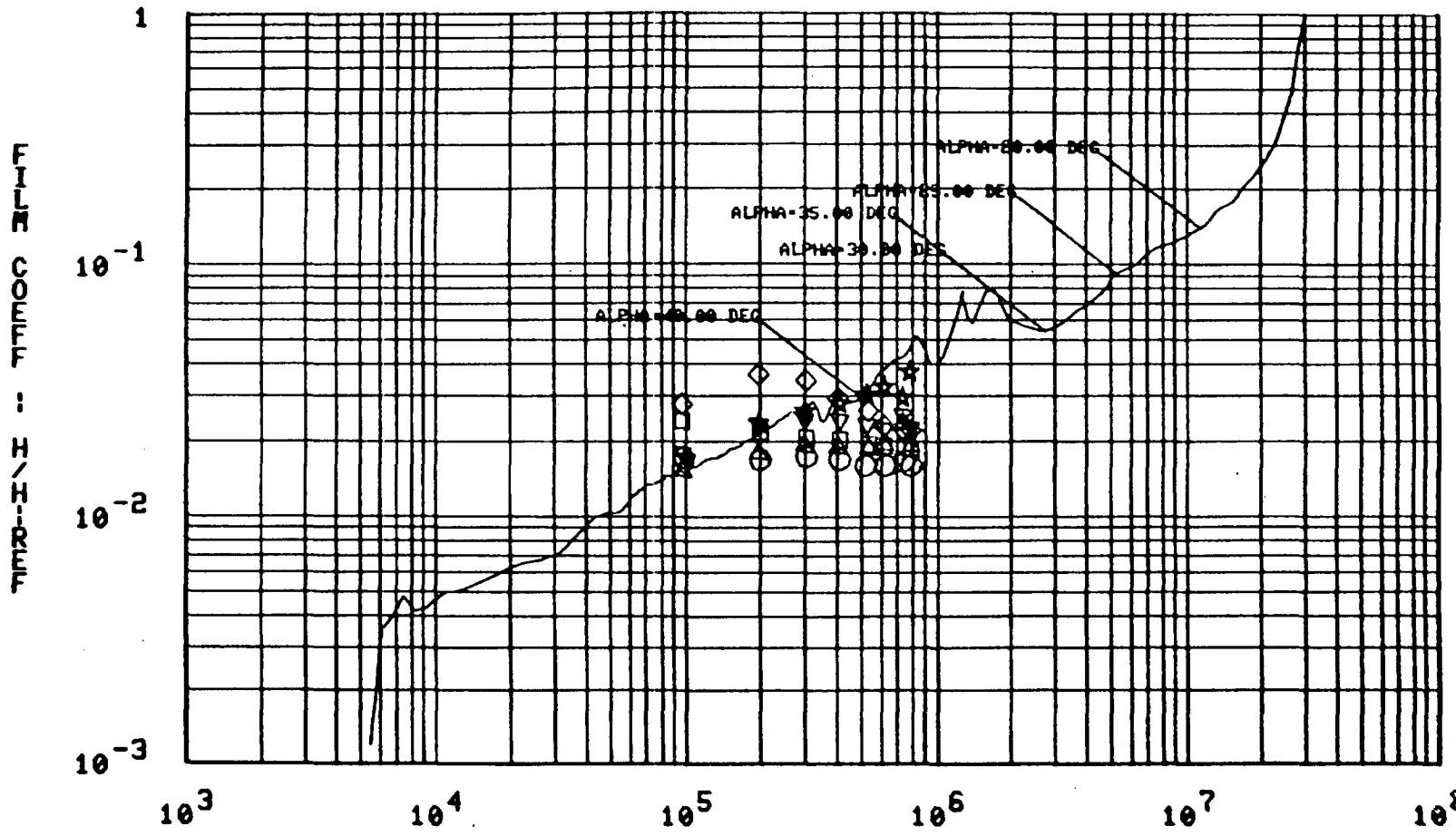
01/12/84
BASE TIME = 16044423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9924A/H-REF 150-1430 SEC



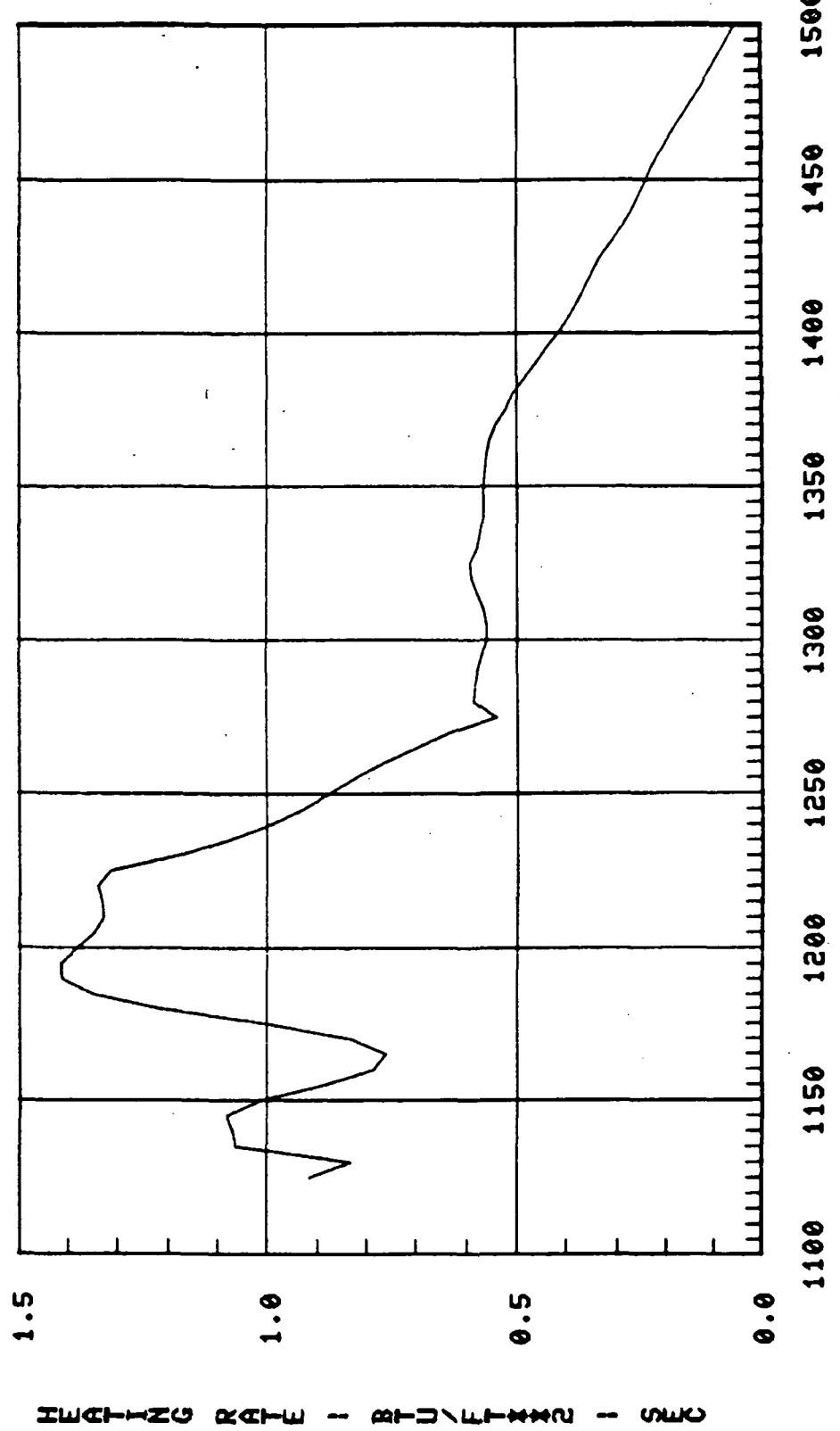
B-440

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 27698591.000 SEC.

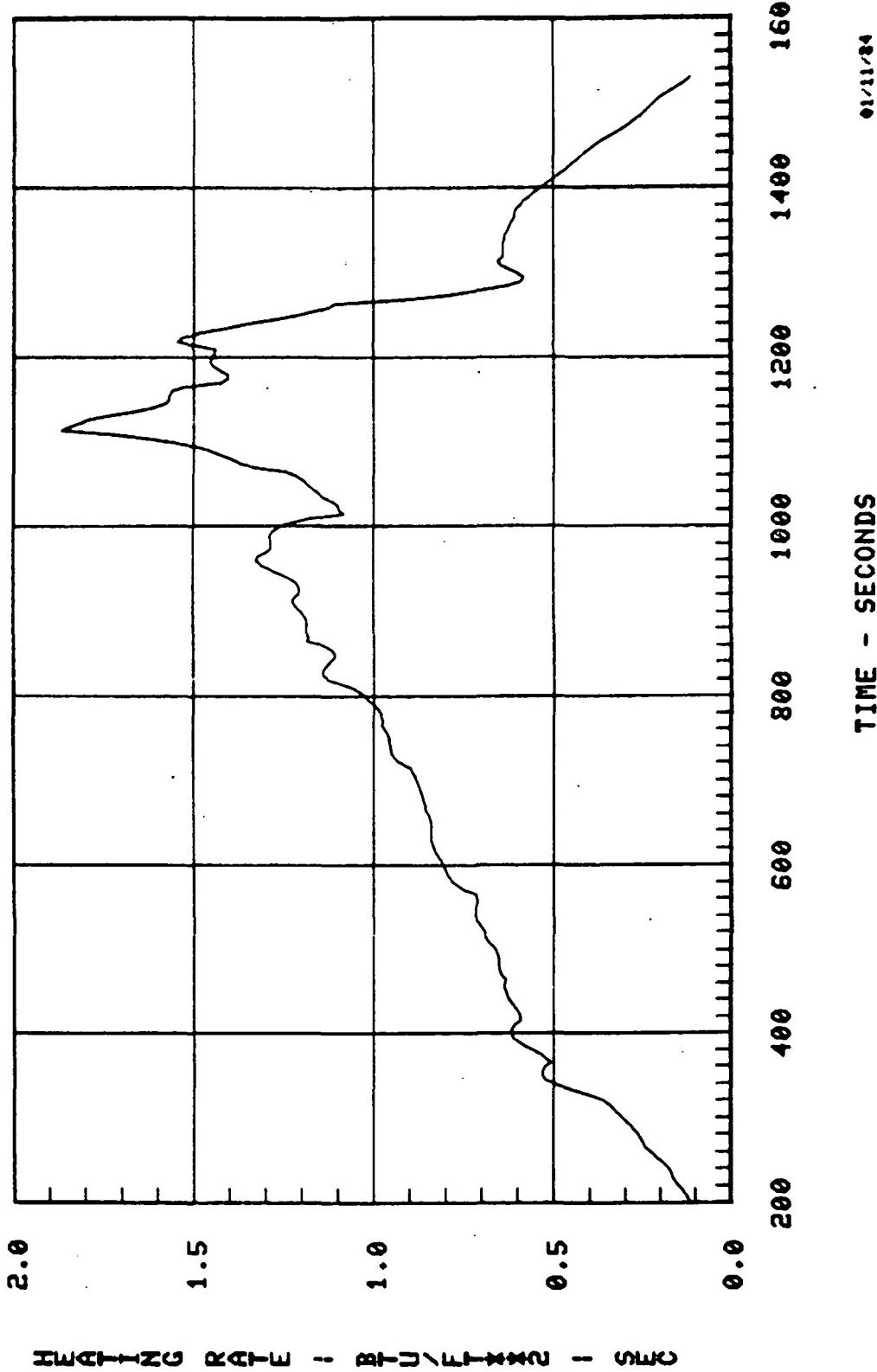
STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U0719924A



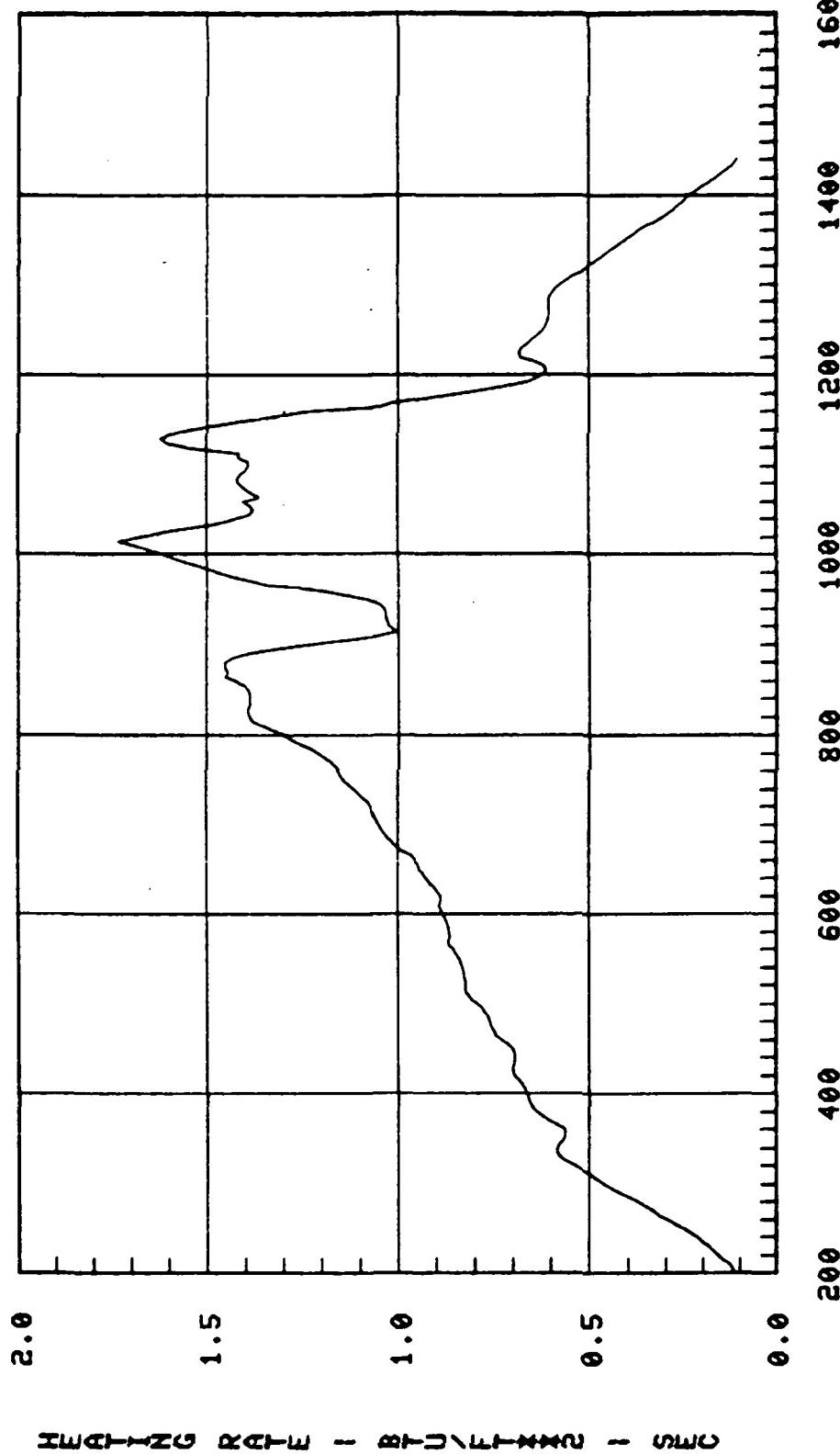
STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U6779924A



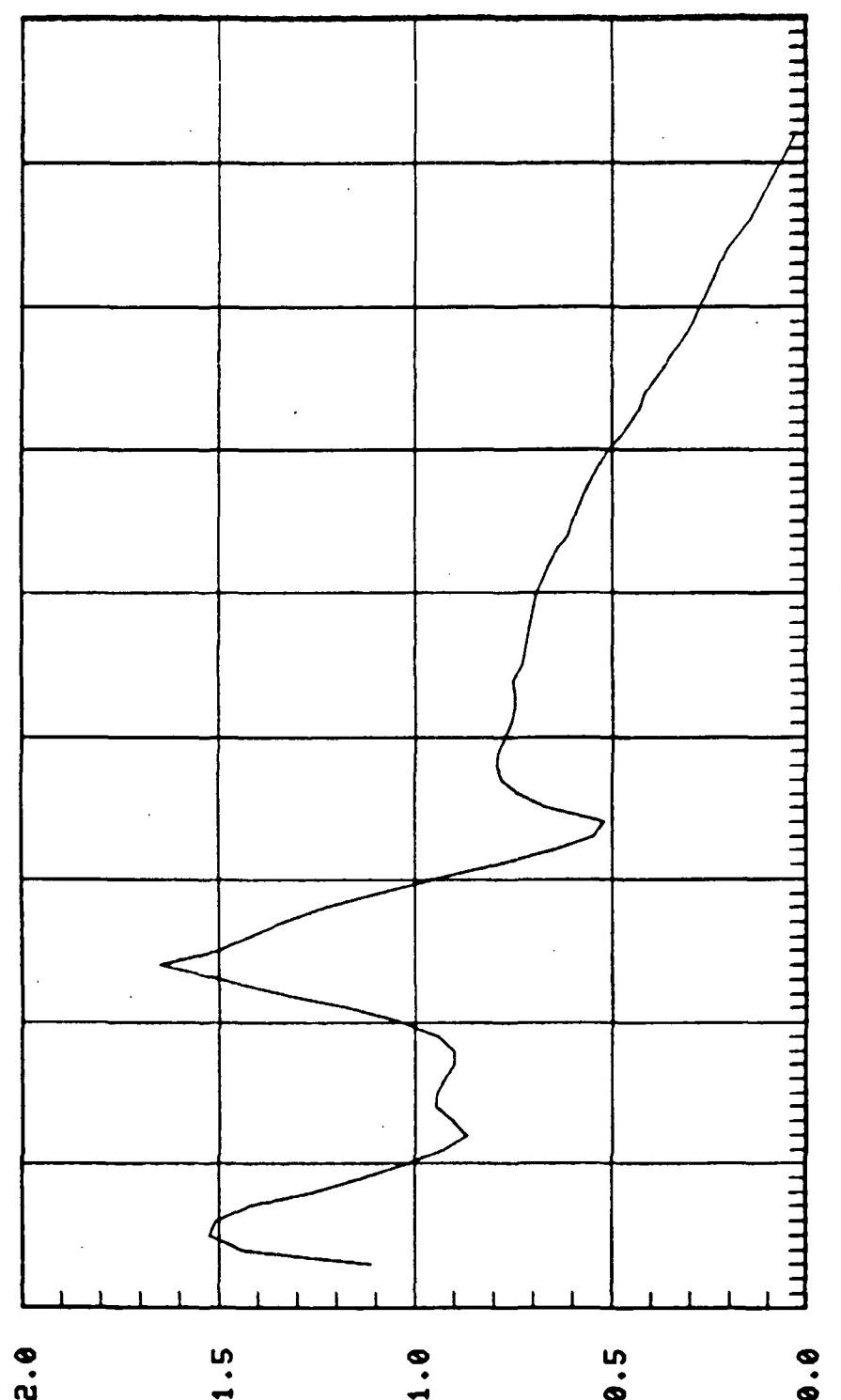
STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U6719924A



STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

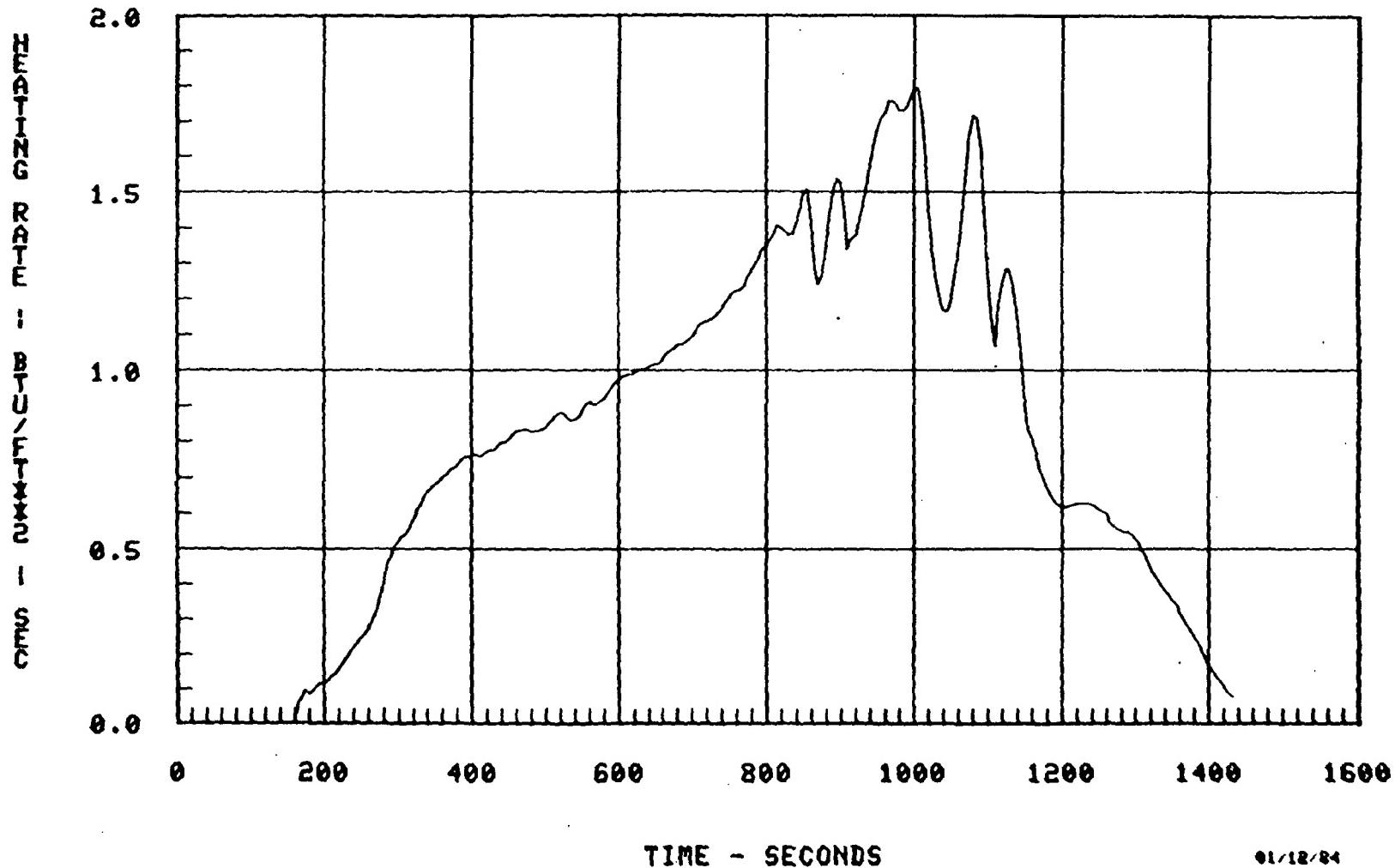
00719924A



INCREASING RATE -- POSITION -- SEC

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

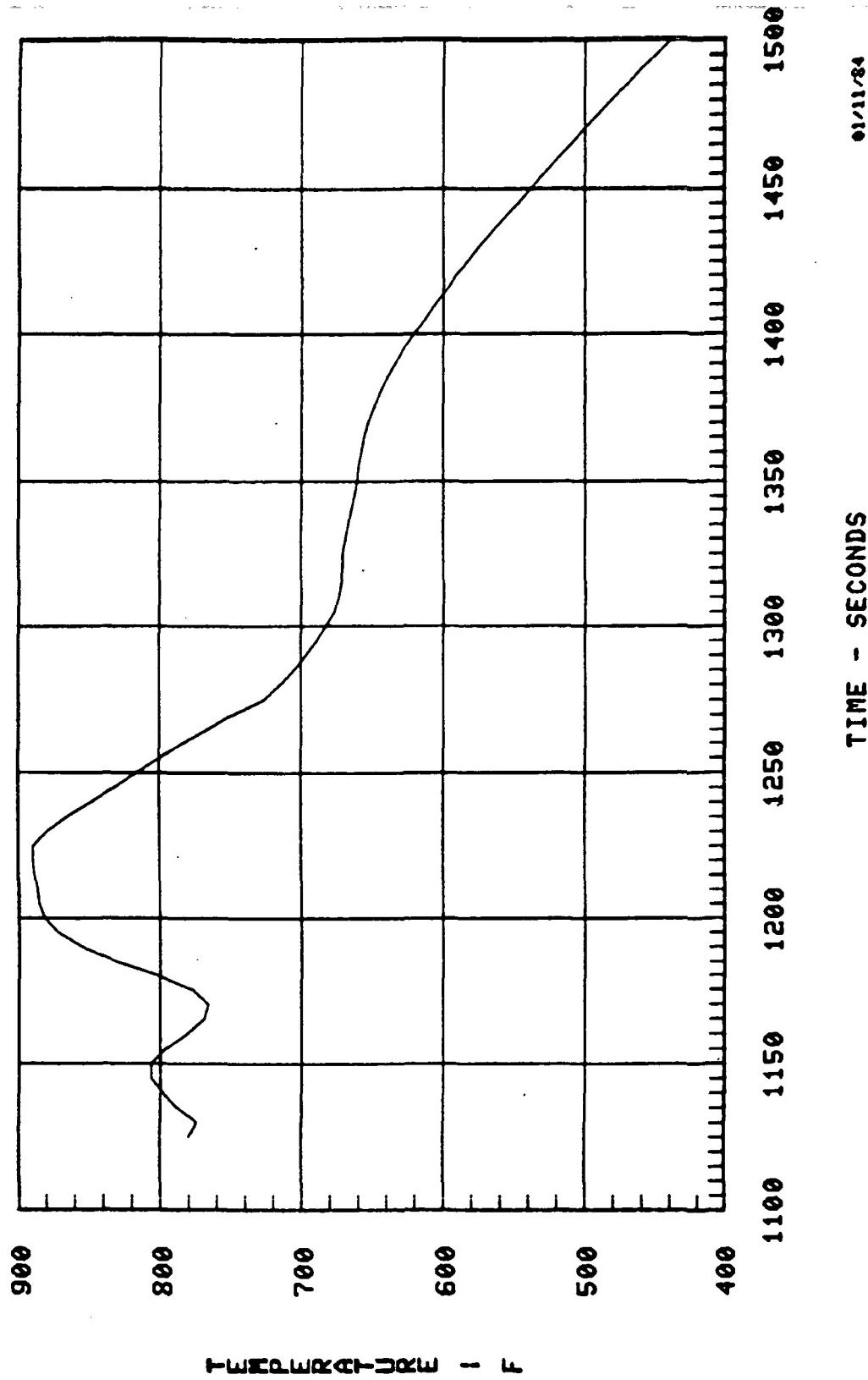
U67T9924A



01/12/84

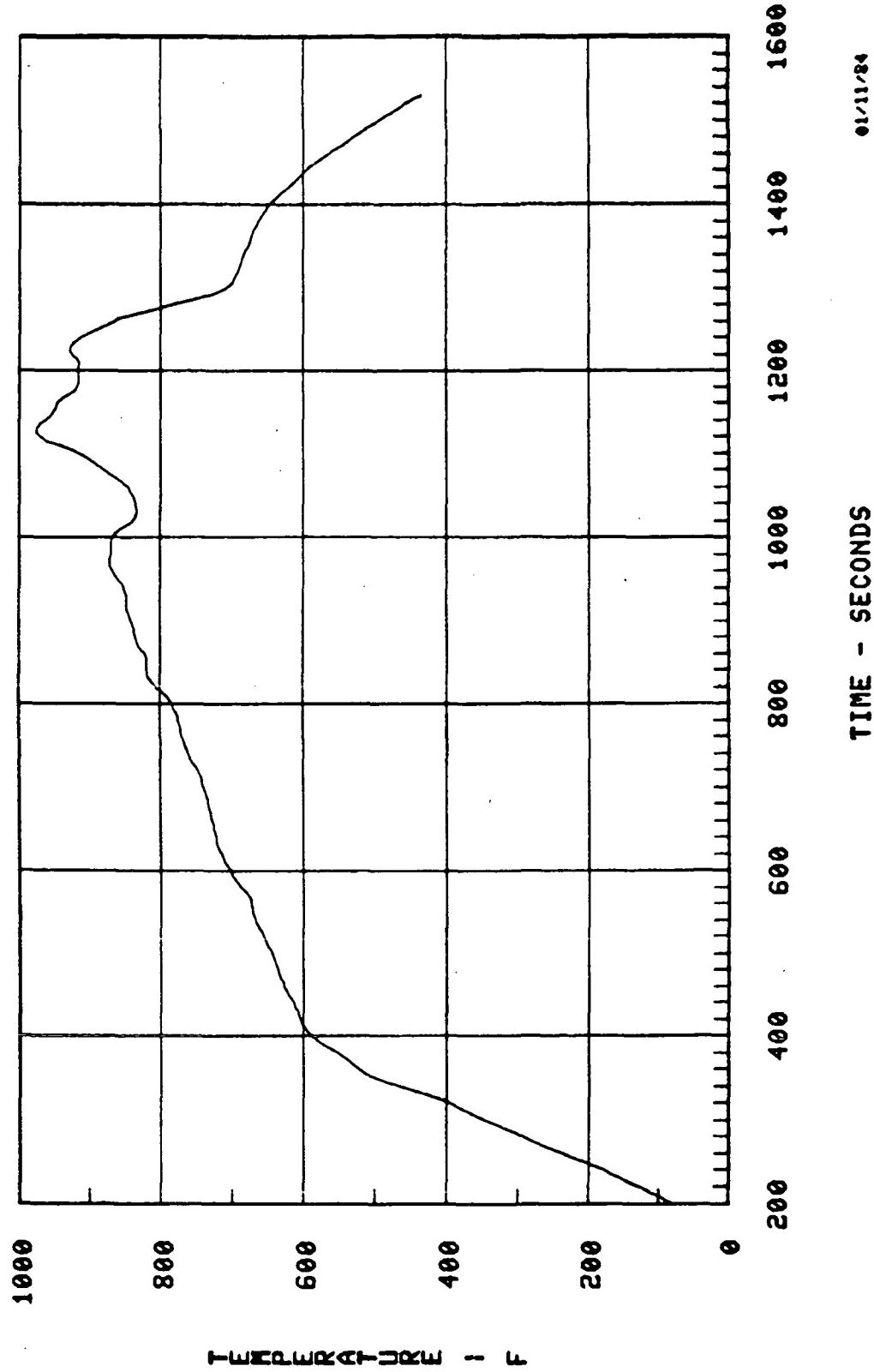
STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U0779924A



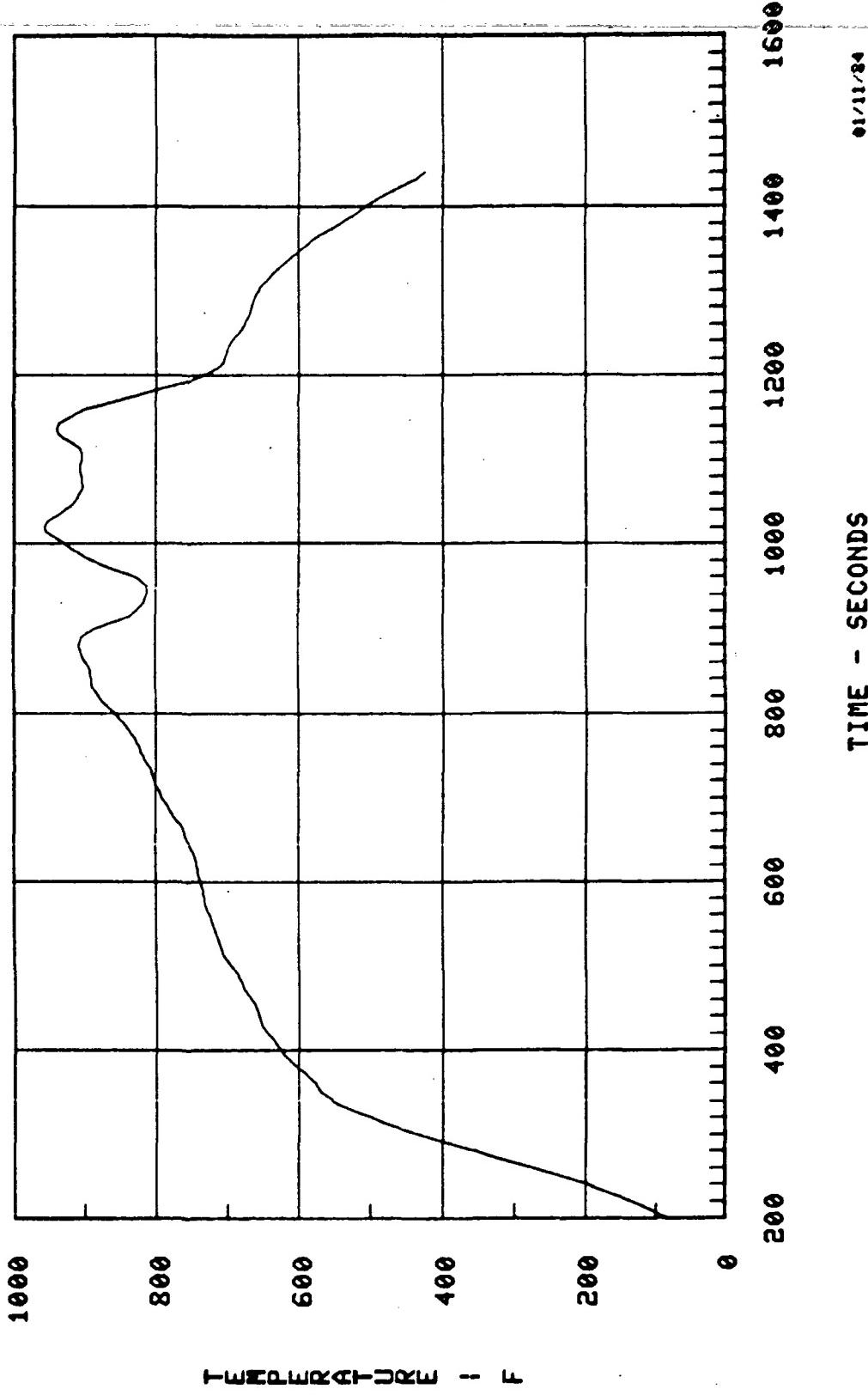
STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U9779924A



STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U07T9924A



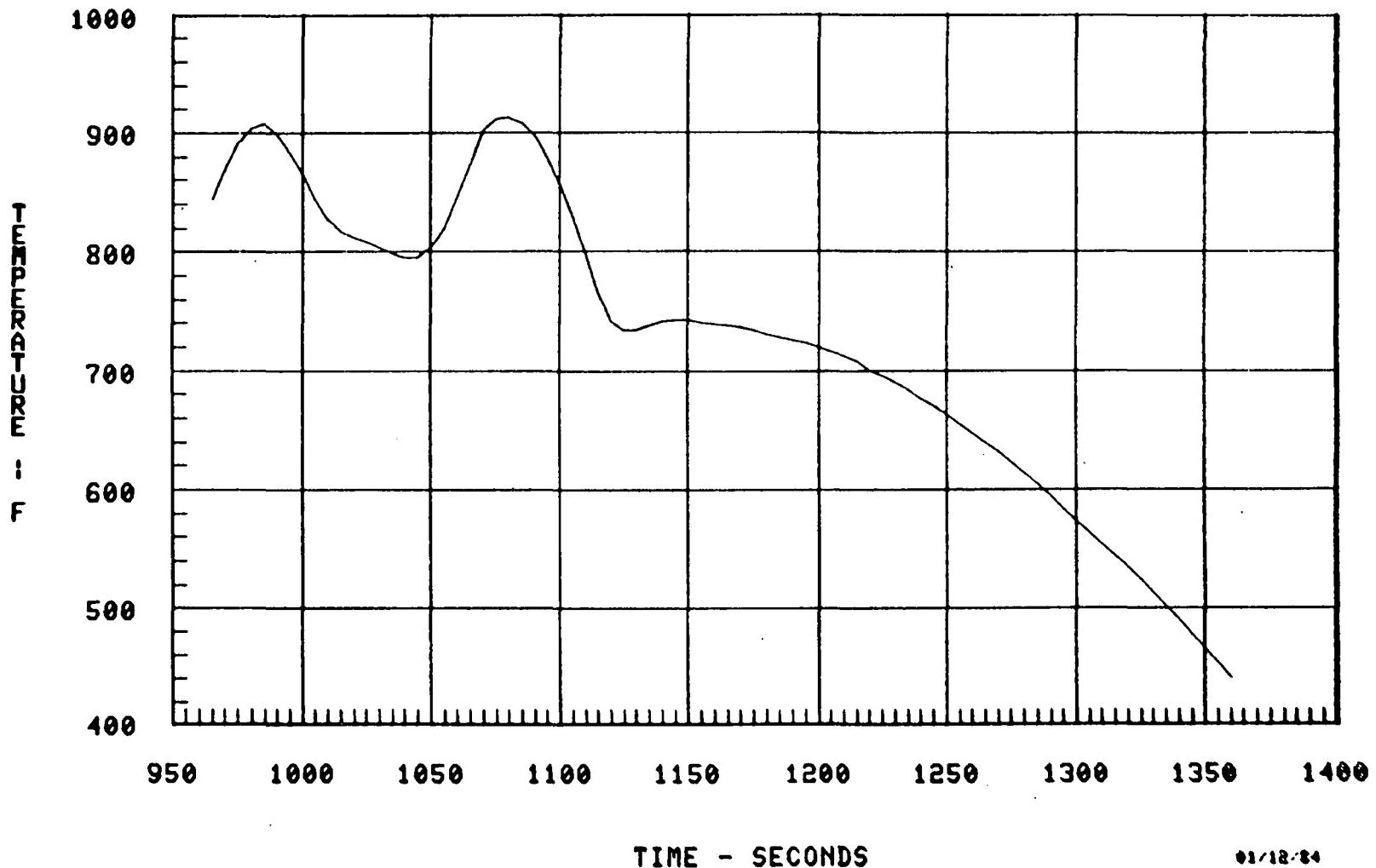
TEMPERATURE -- F

B-448

01/11/84

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

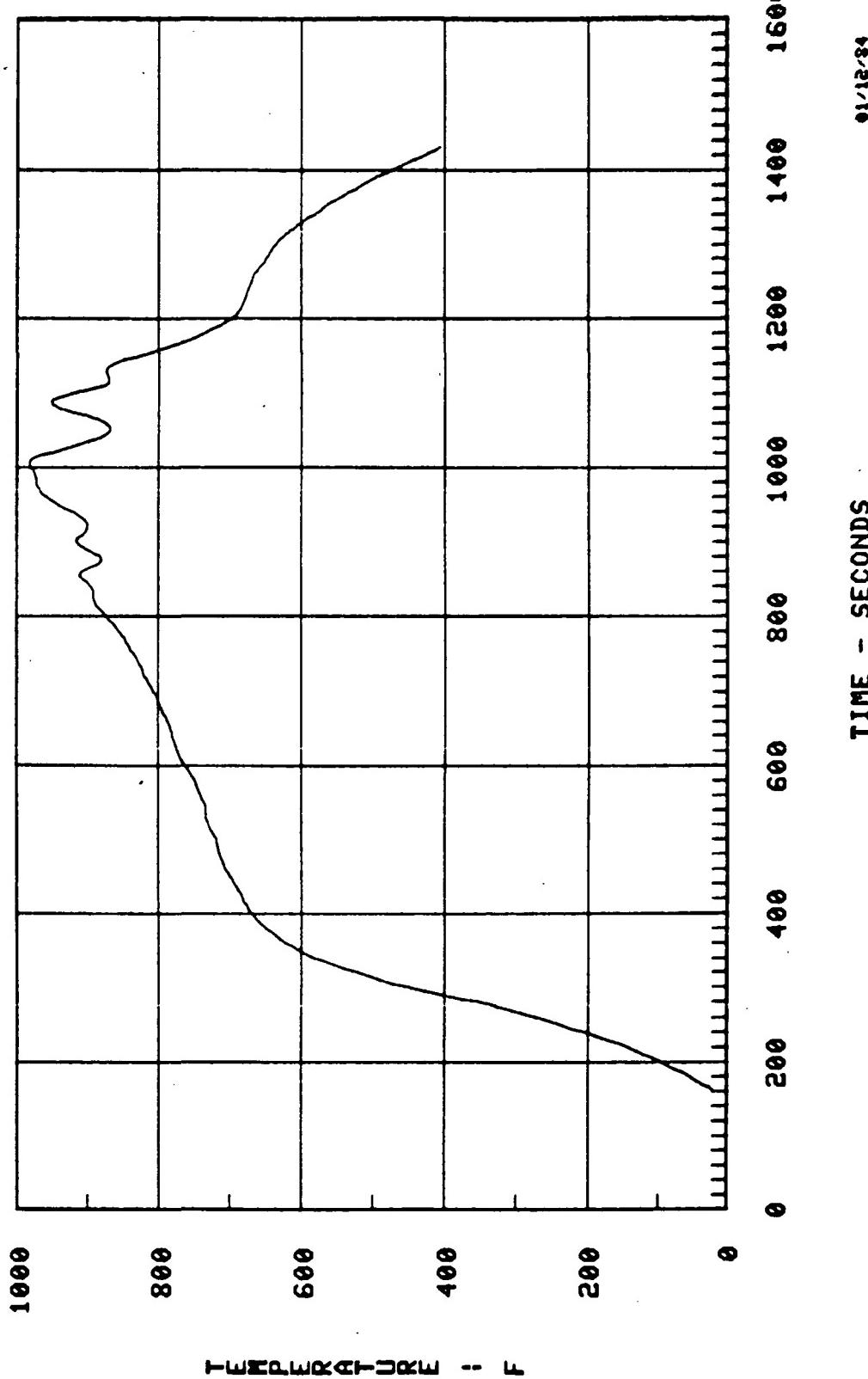
U07T9924A



01/18/84

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.50) Z=440

U07T9924A



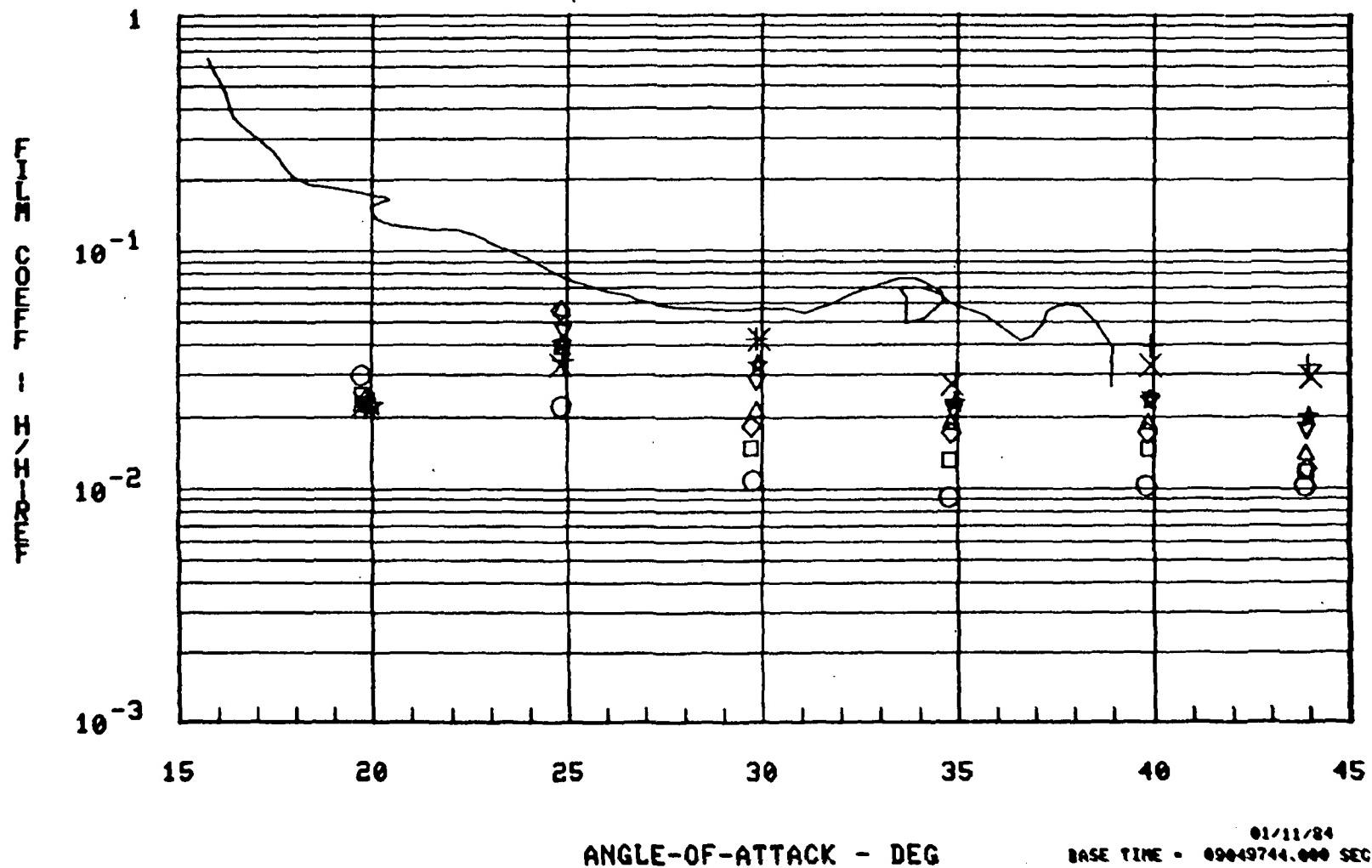
01/12/84

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9913A/H-REF 1065-1500 SEC

○ □ △ ▲ ★ + X



B-451

ANGLE-OF-ATTACK - DEG

01/11/84

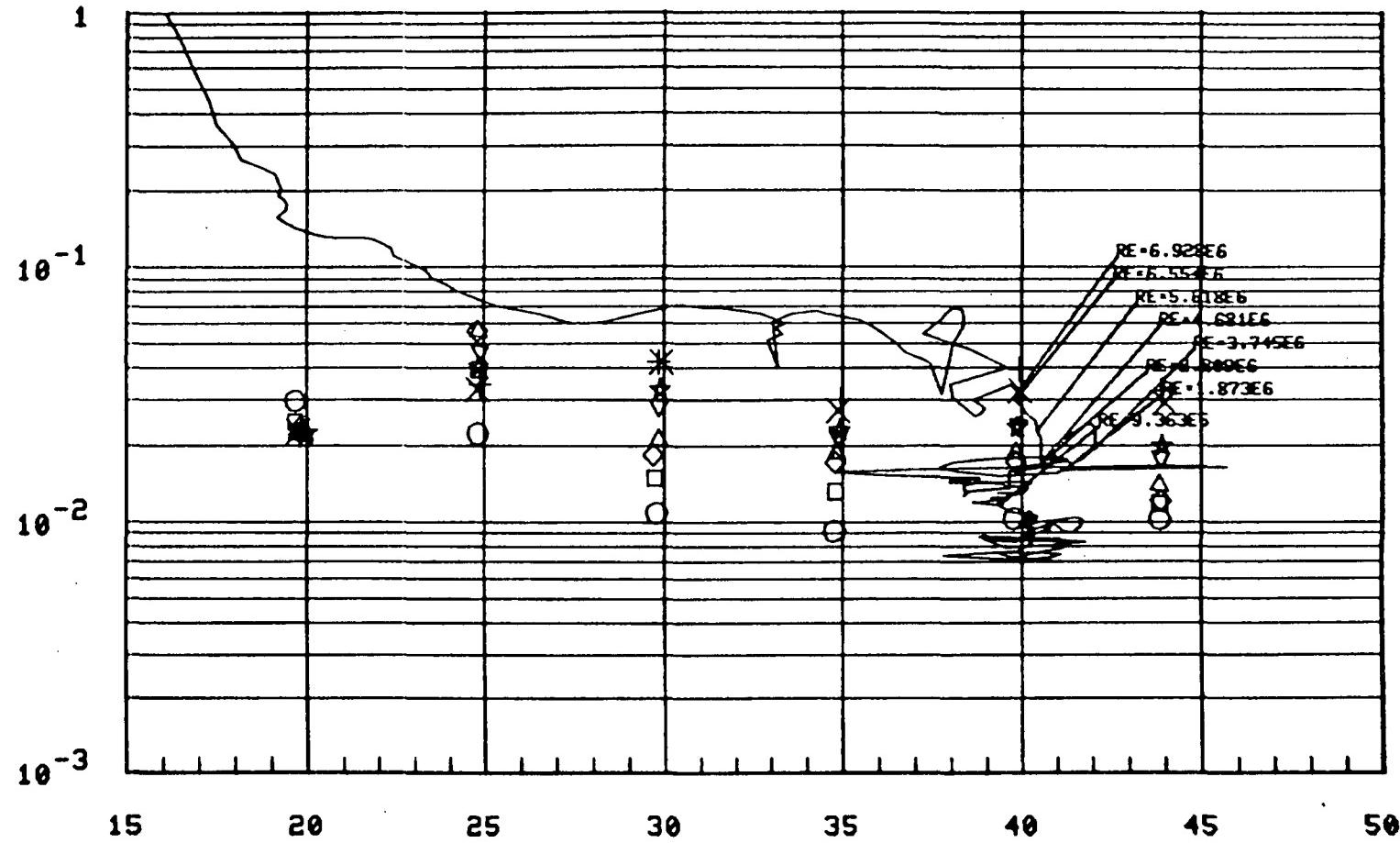
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9913A/H-REF 200-1530 SEC

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B-452

ANGLE-OF-ATTACK - DEG

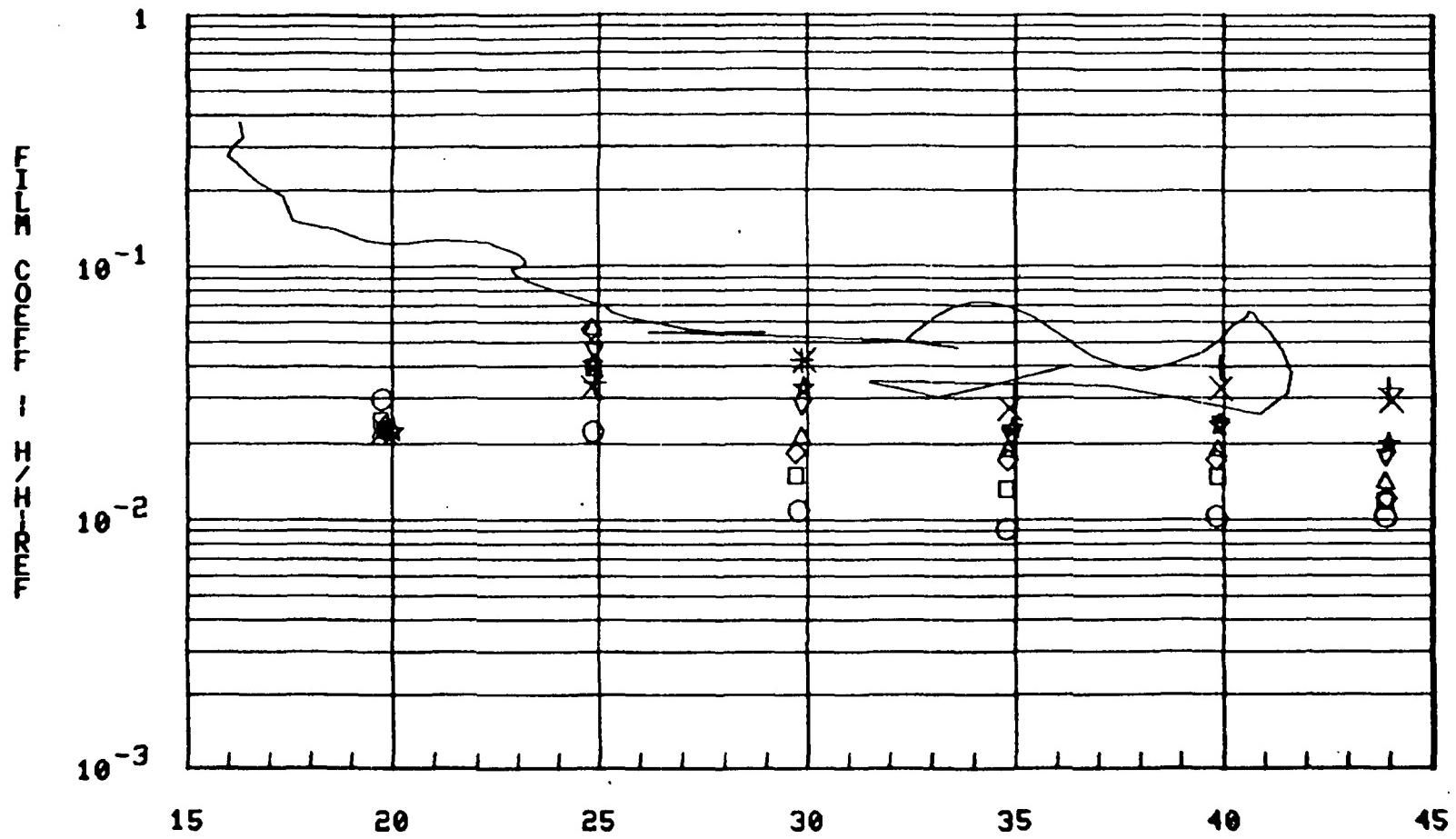
01/11/84
BASE TIME = 27550236.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

○□◇△★+X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9913A/H-REF 965-1360 SEC



B-453

01/12/84
 ANGLE-OF-ATTACK - DEG

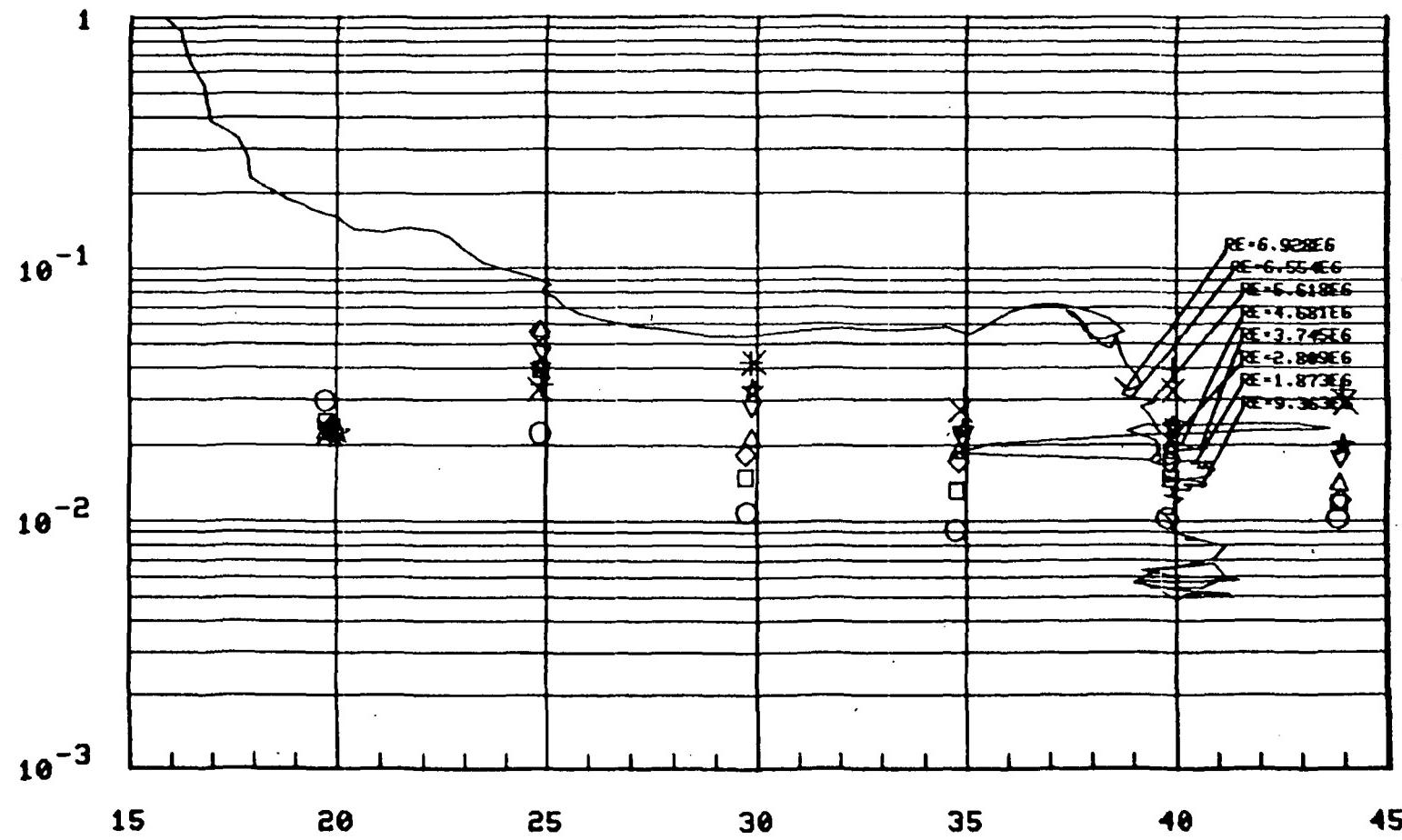
BASE TIME = 16010423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U87T9913A/H-REF 150-1430 SEC

○□◇△★+X



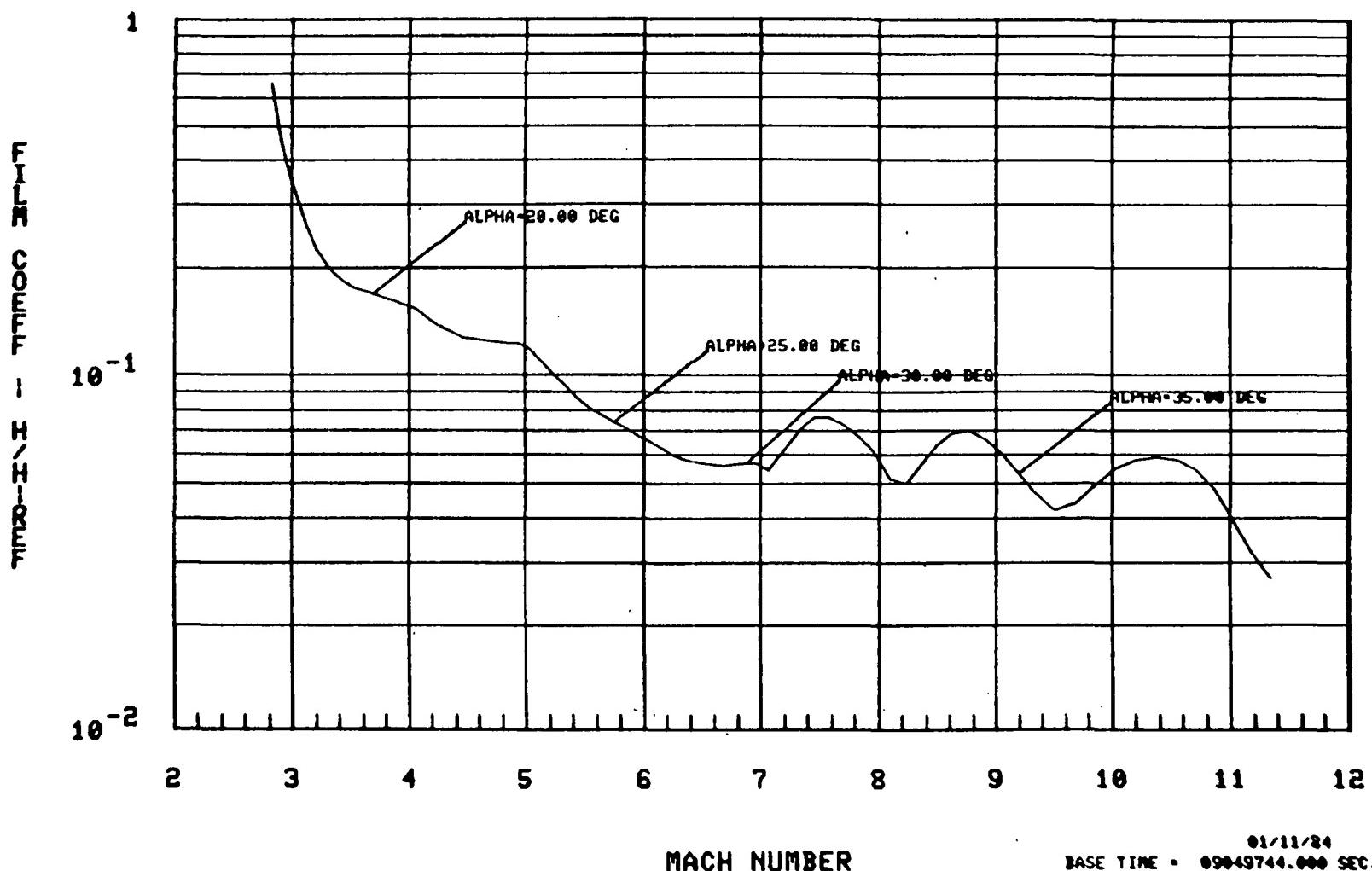
B-454

01/12/84
 ANGLE-OF-ATTACK - DEG

BASE TIME - 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

U07T9913A/H-REF 1065-1500 SEC

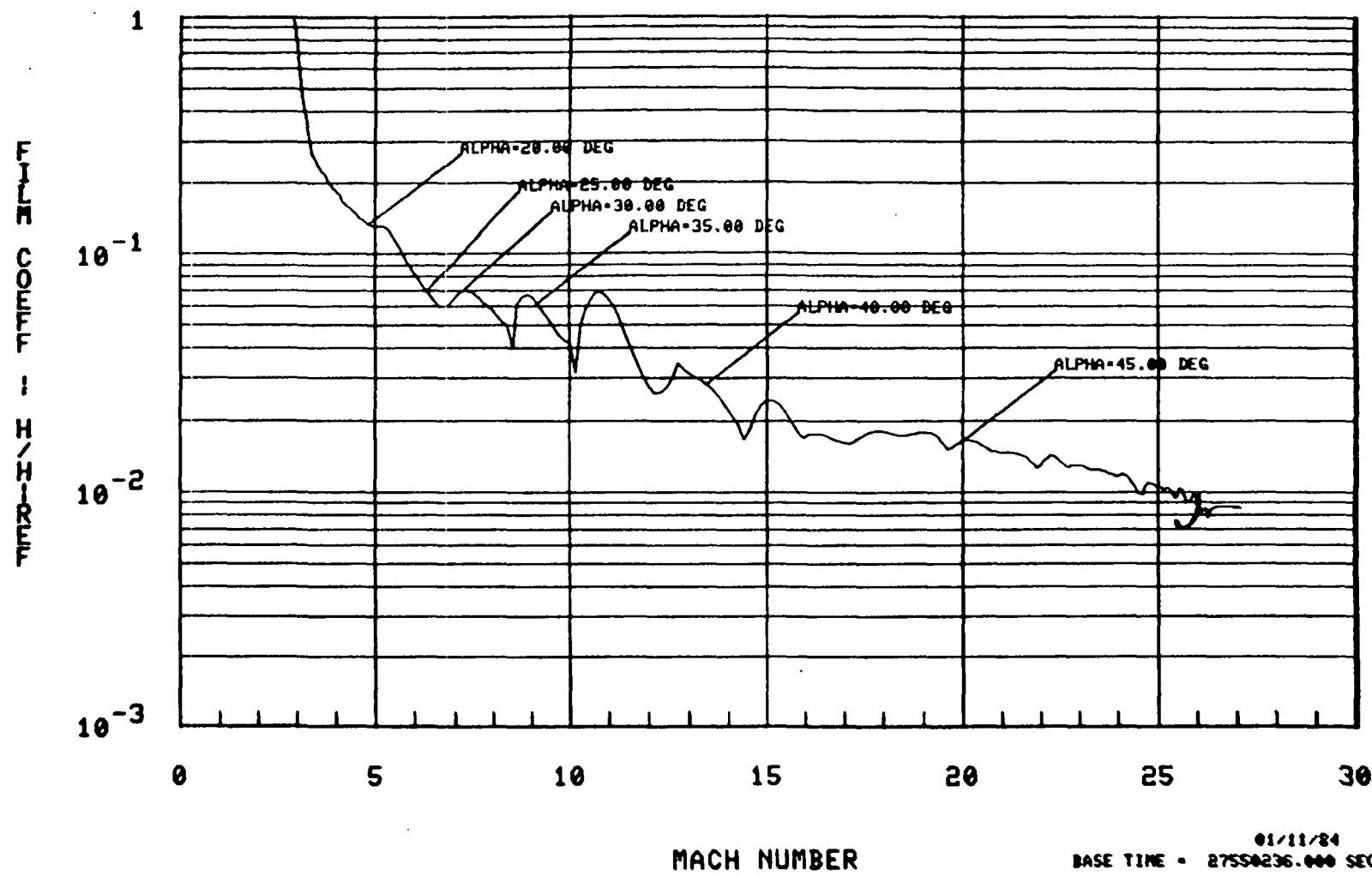


01/11/84
BASE TIME = 09049744.000 SEC.

B-455

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

U07T9913A/H-REF 200-1530 SEC



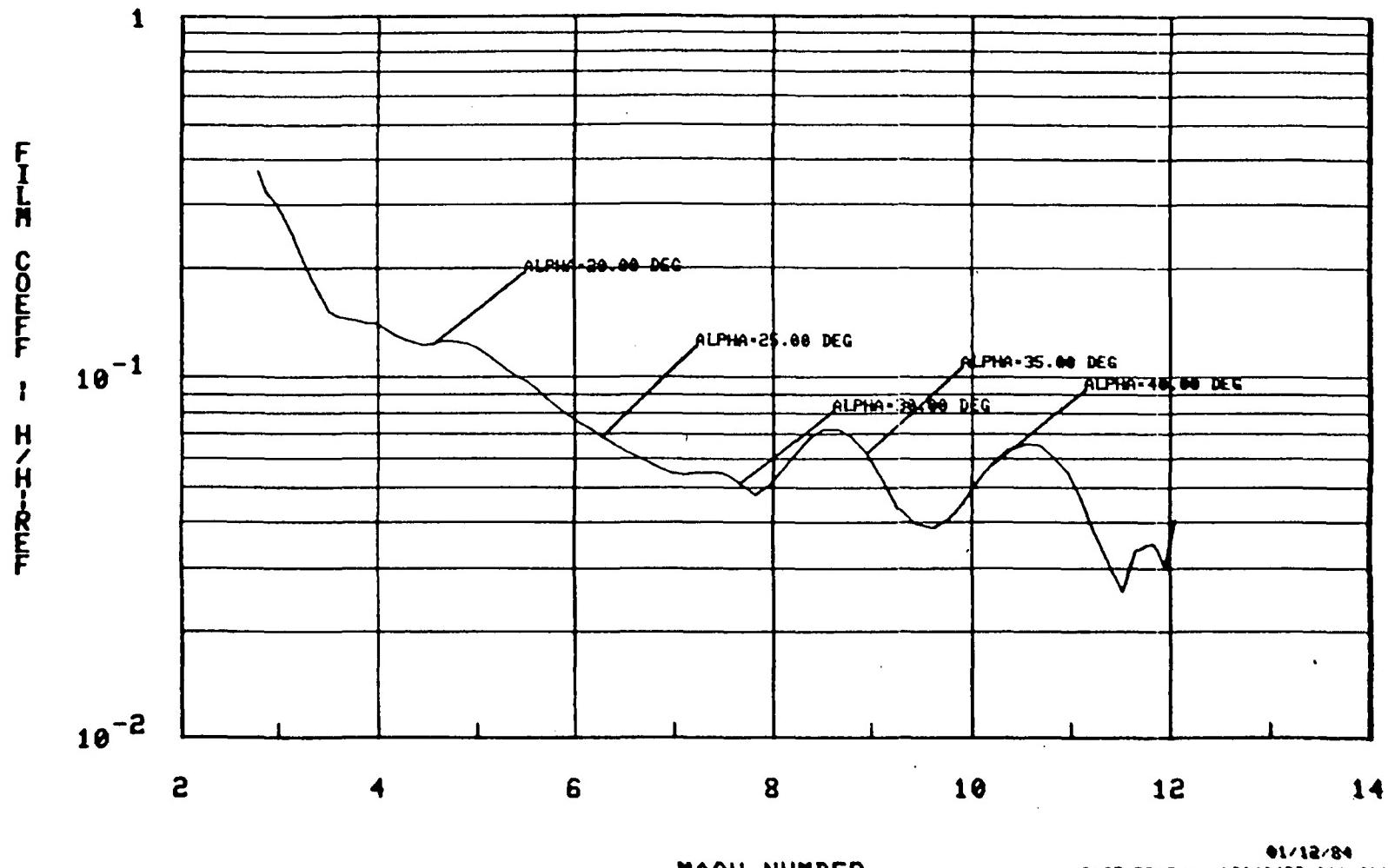
01/11/84

BASE TIME = 27SS0236.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

U67T9913A/H-REF 965-1360 SEC

B-457

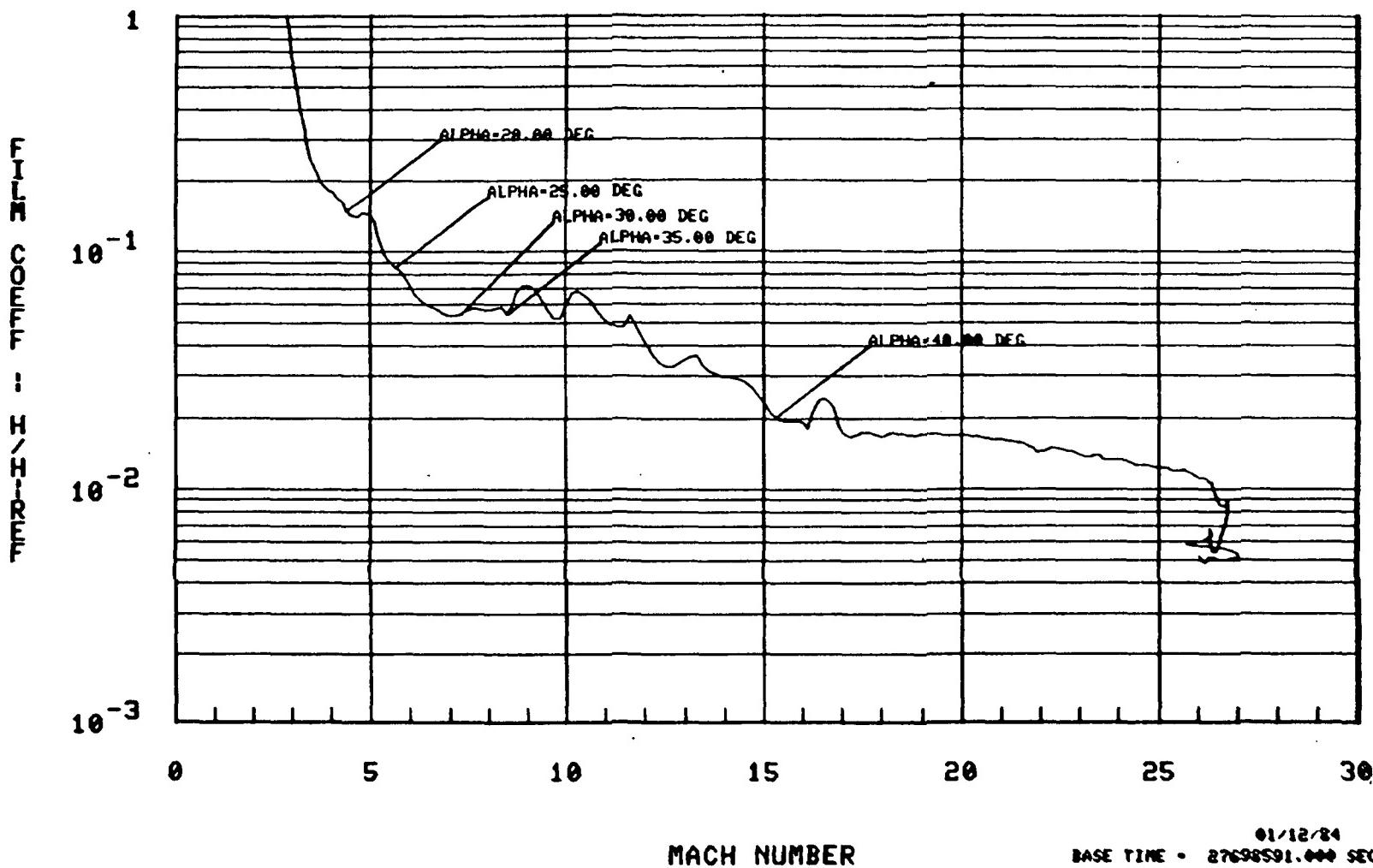


MACH NUMBER

01/12/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

U07T9913A/H-REF 150-1430 SEC



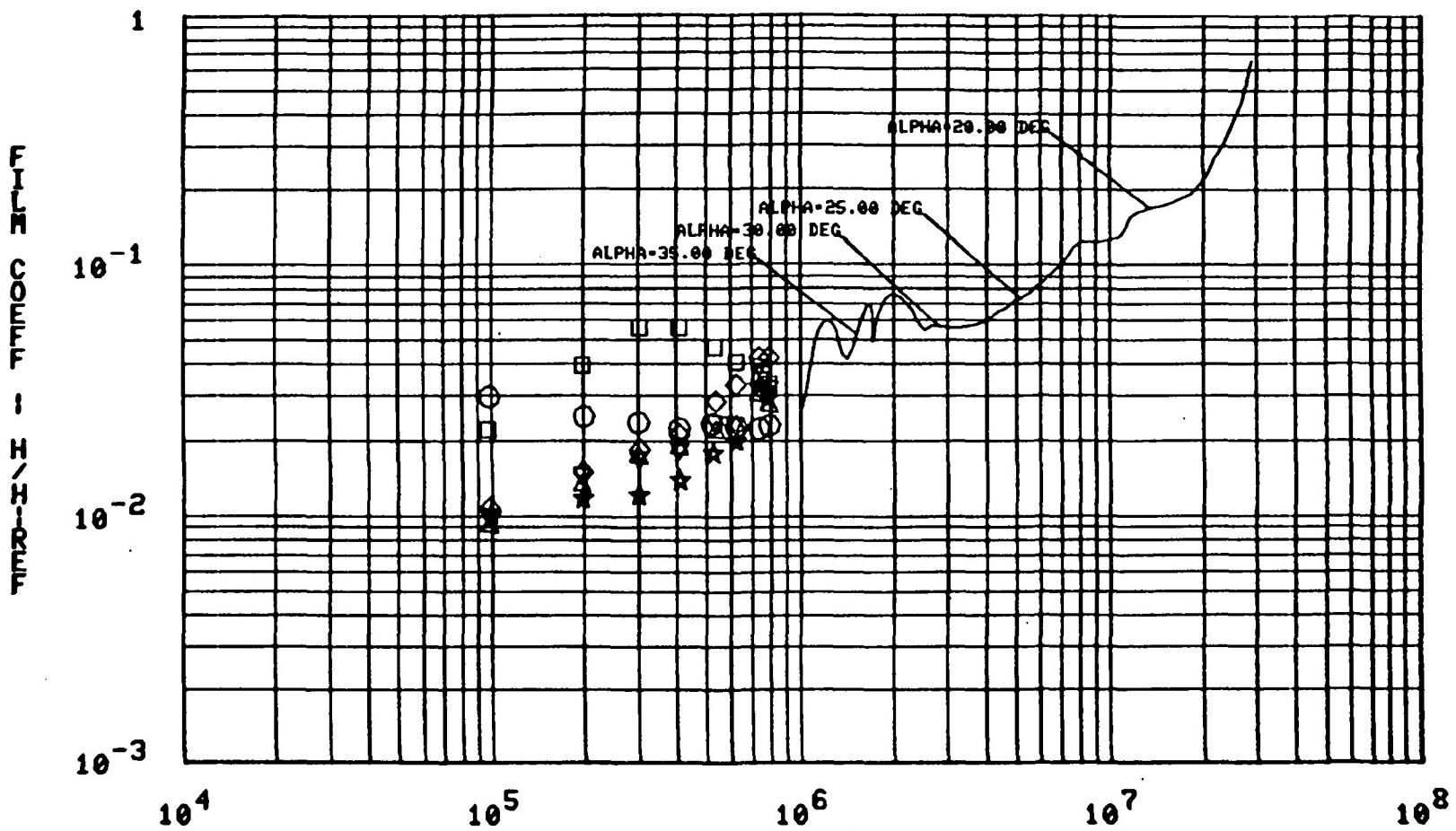
01/12/84
BASE TIME • 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9913A/H-REF 1065-1500 SEC



B-459

REYNOLDS NUMBER (NS)

01/11/84

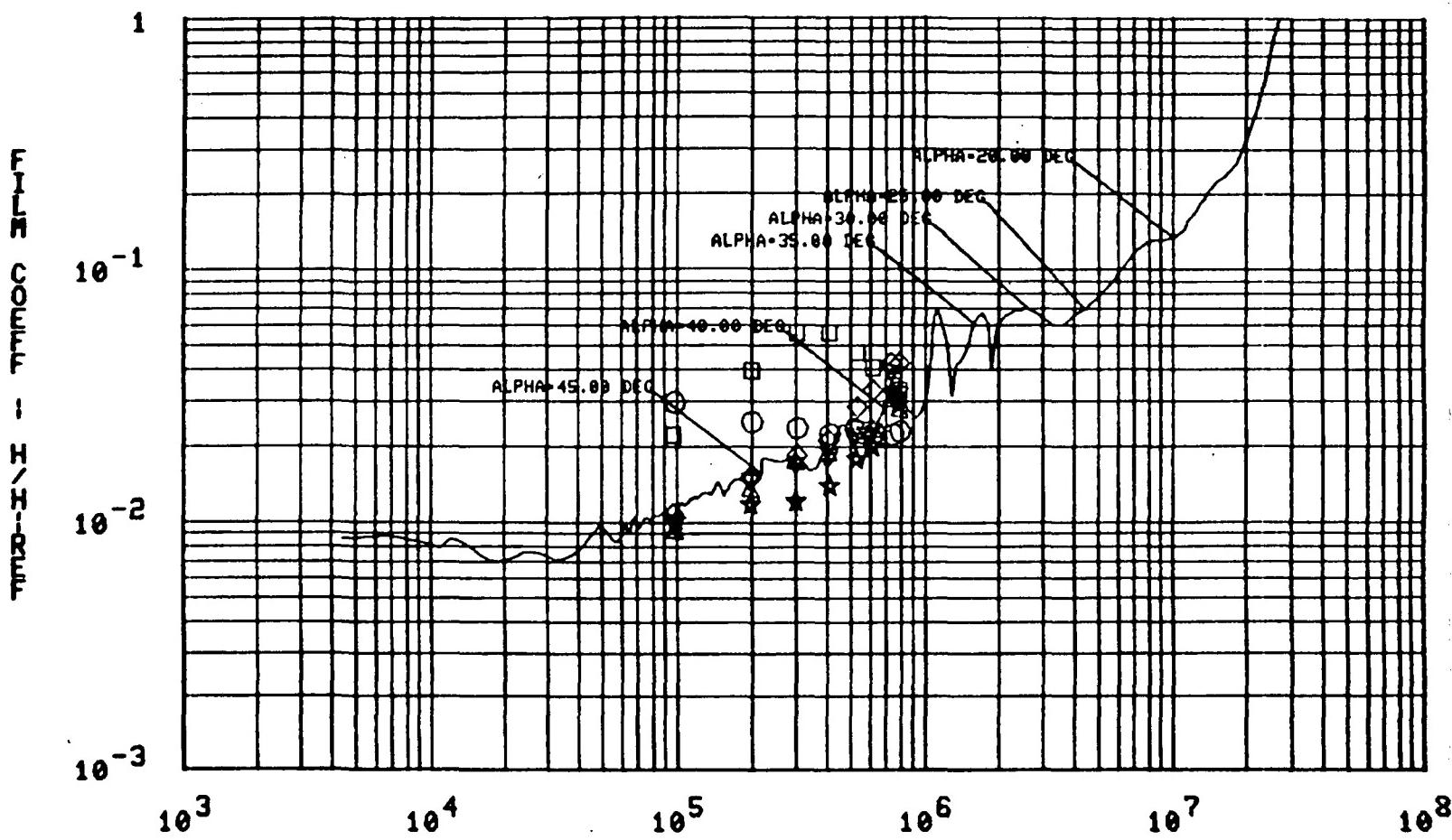
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

○ □ ◇ △ ▽ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9913A/H-REF 200-1530 SEC



B-460

REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 27550236.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

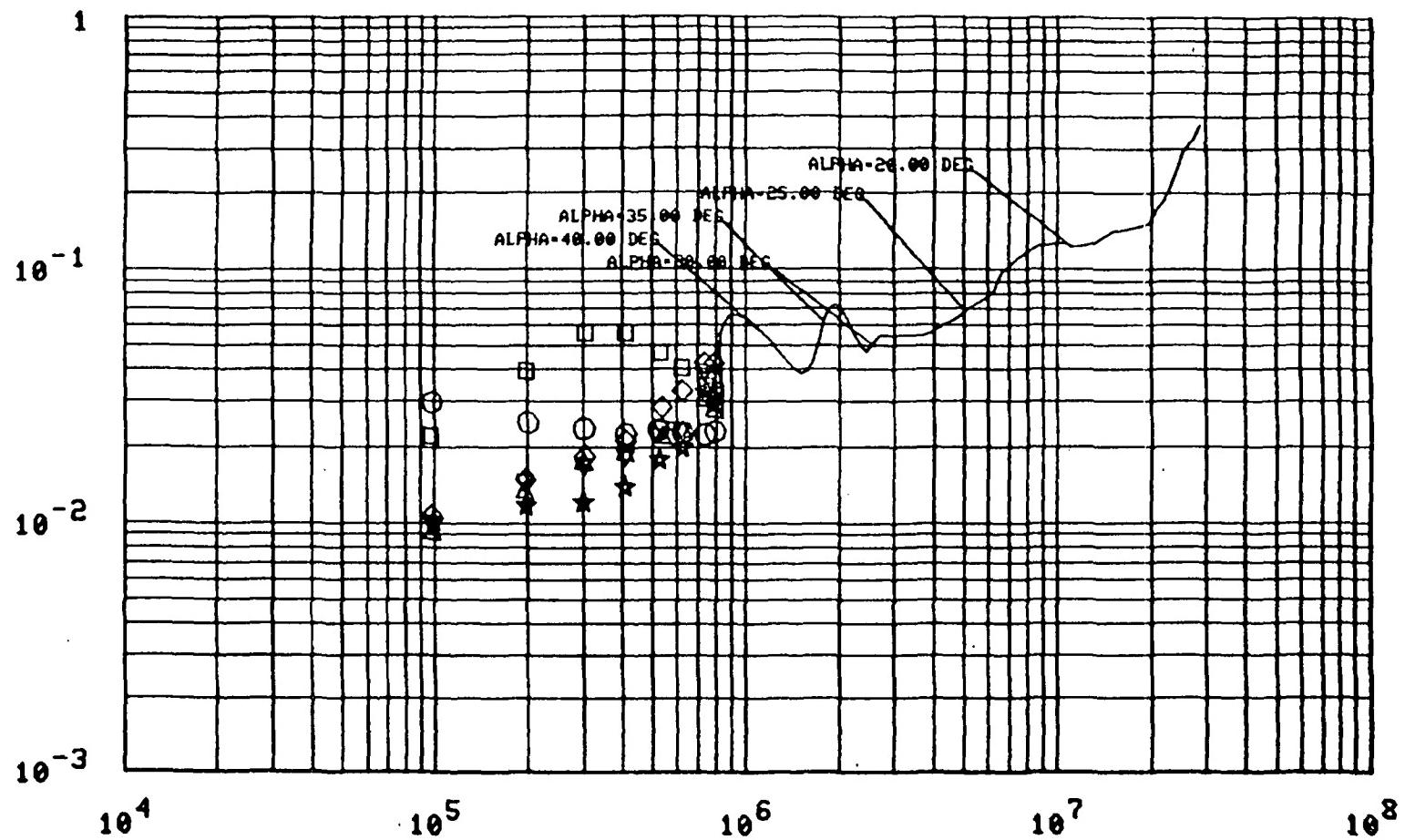
○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9913A/H-REF 965-1360 SEC

LINE SOURCE - H/H-REF

B-461



REYNOLDS NUMBER (Re)

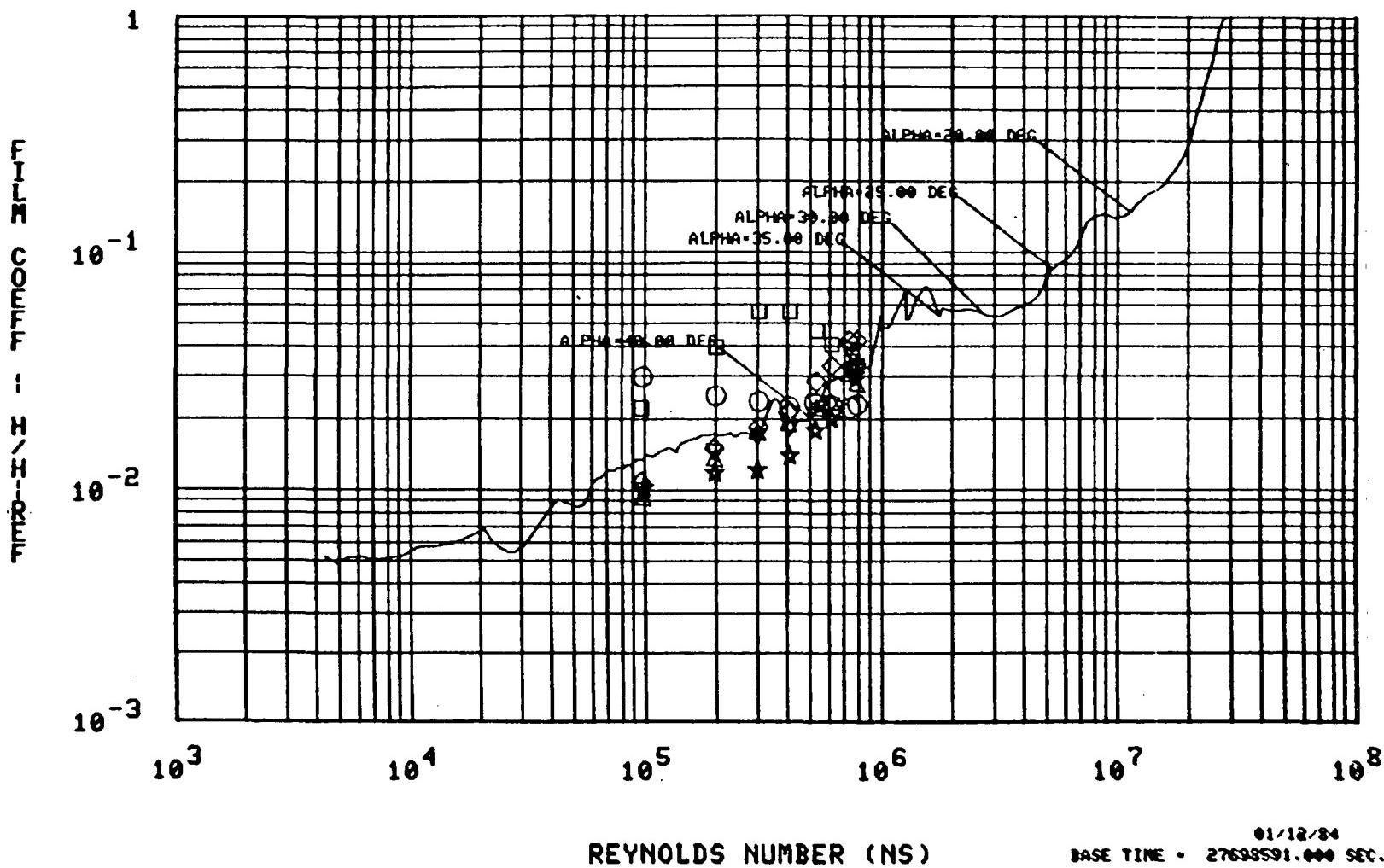
01/12/84
 BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9913A/H-REF 150-1430 SEC

O □ ◇ △ ▲ ★



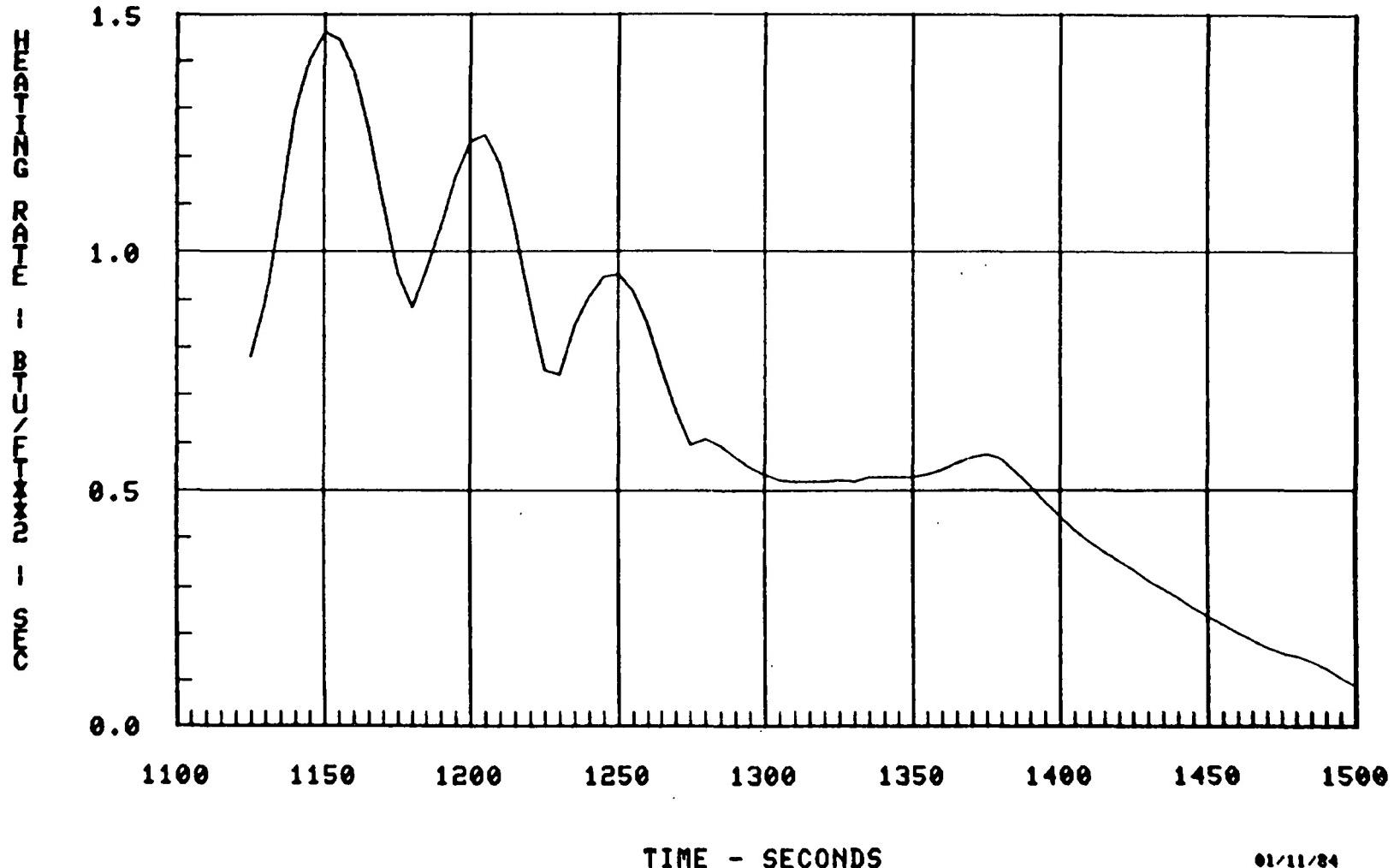
B-462

REYNOLDS NUMBER (NS)

01/12/84
BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

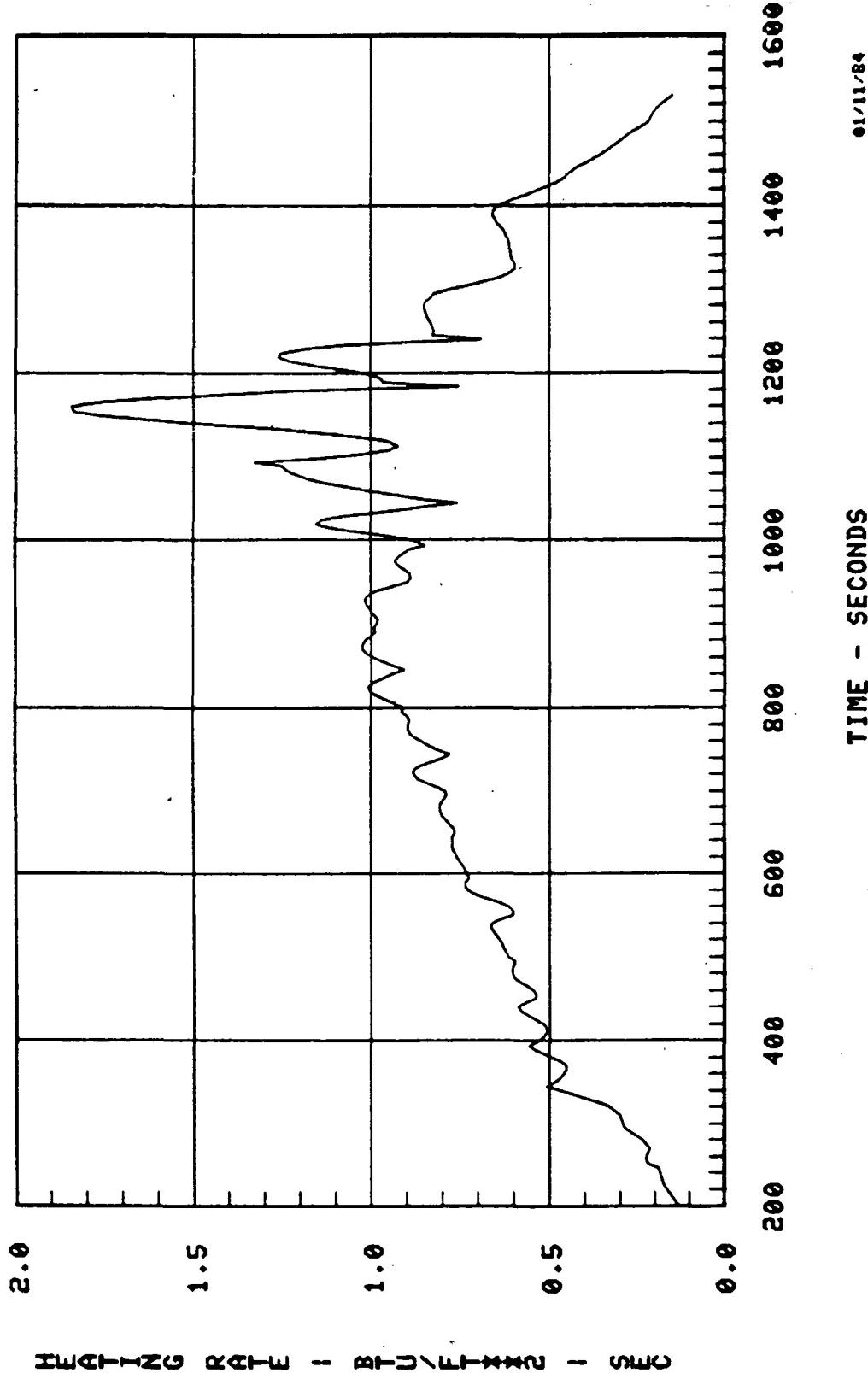
U07T9913A



01/11/84

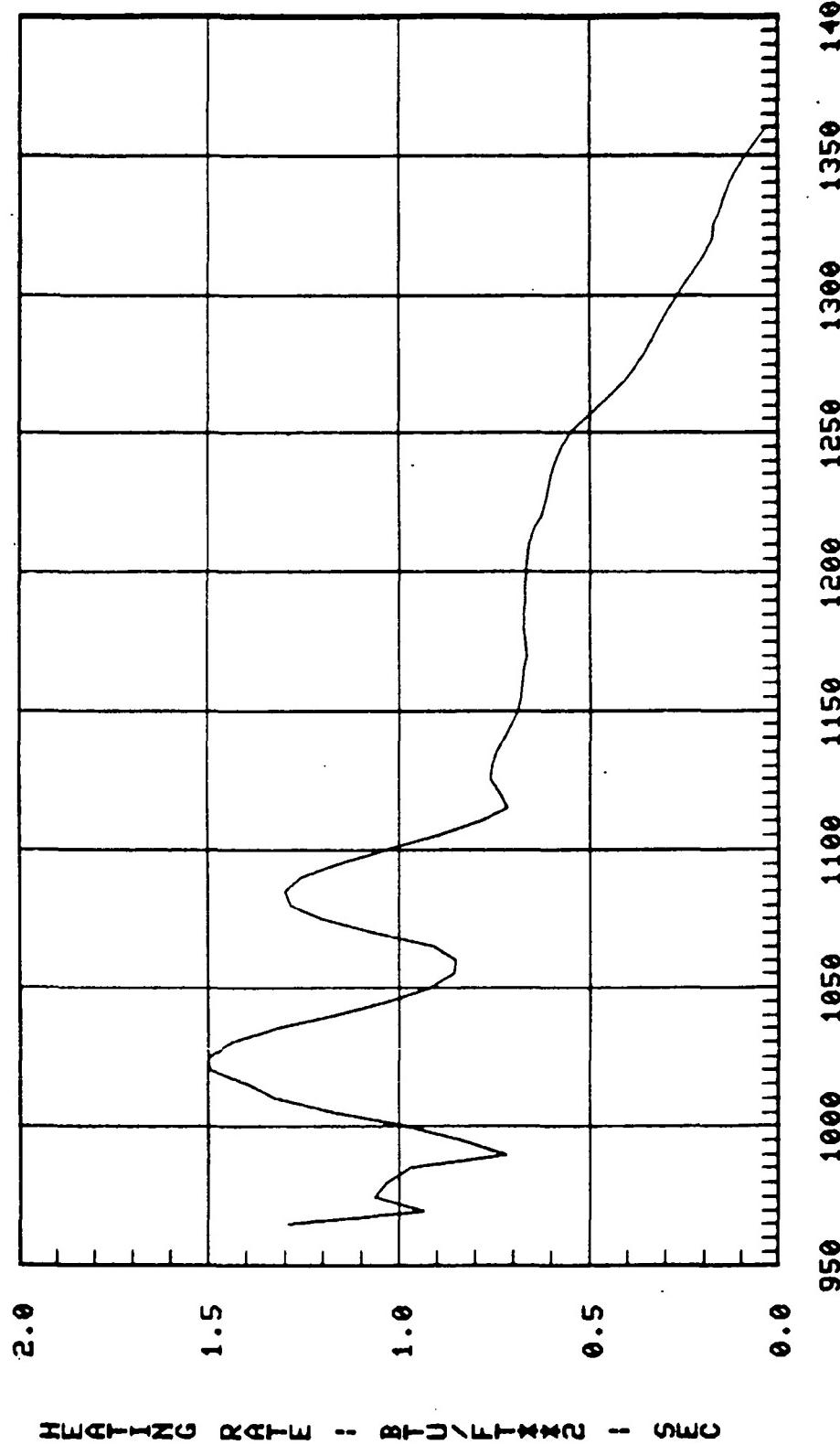
STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=θ.60) Z=440

09779913A



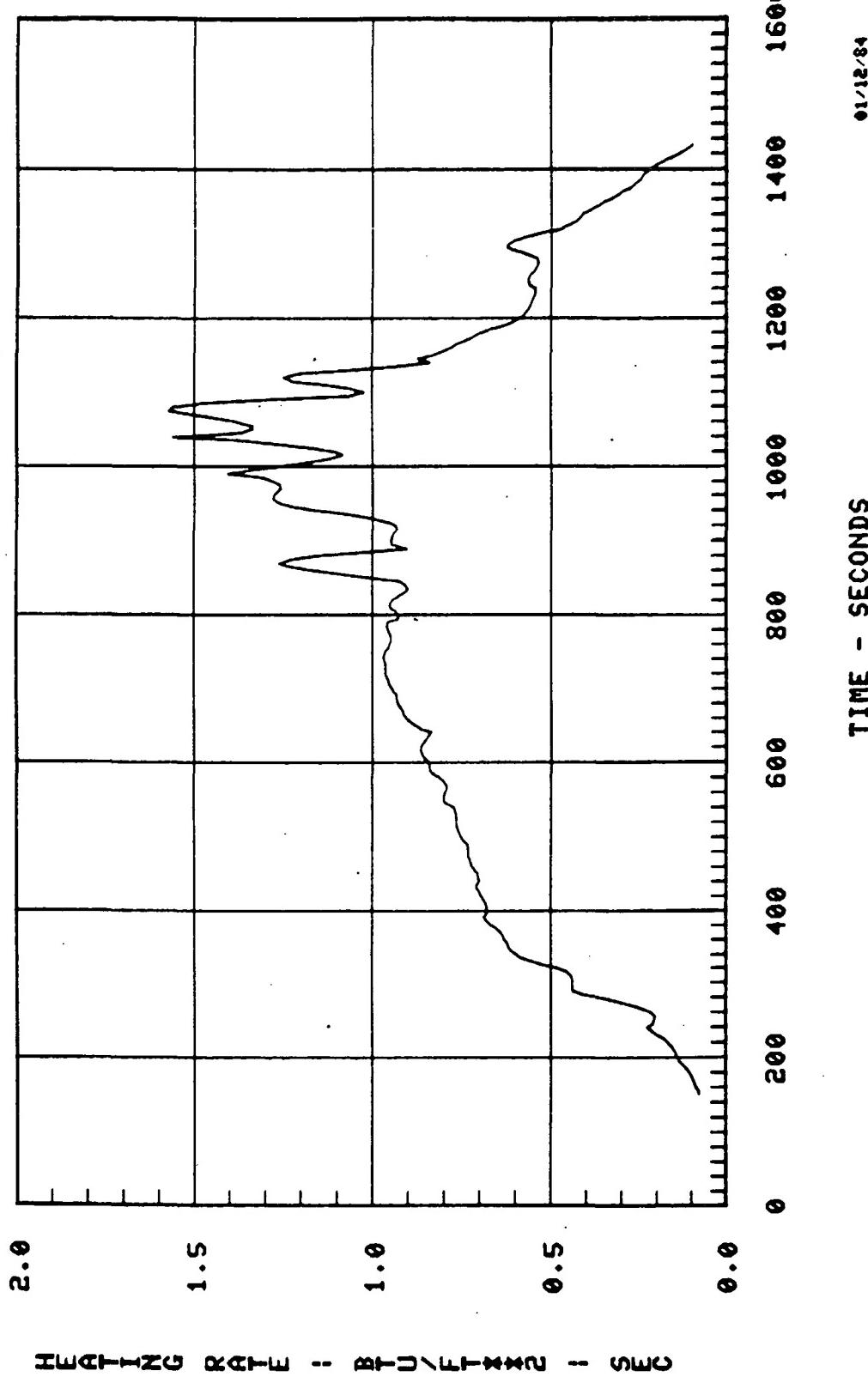
STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

U97T9913A



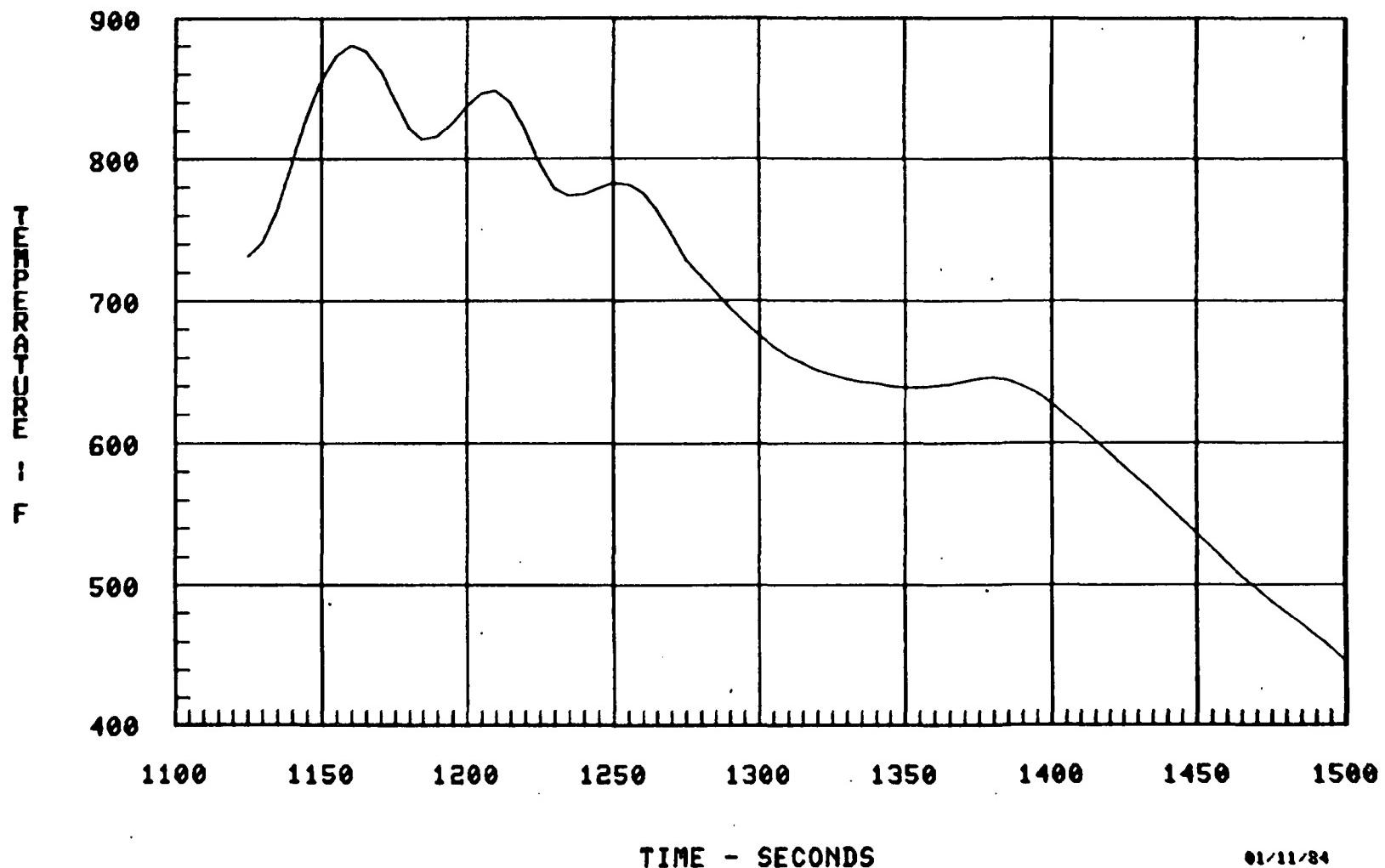
STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

06719913A



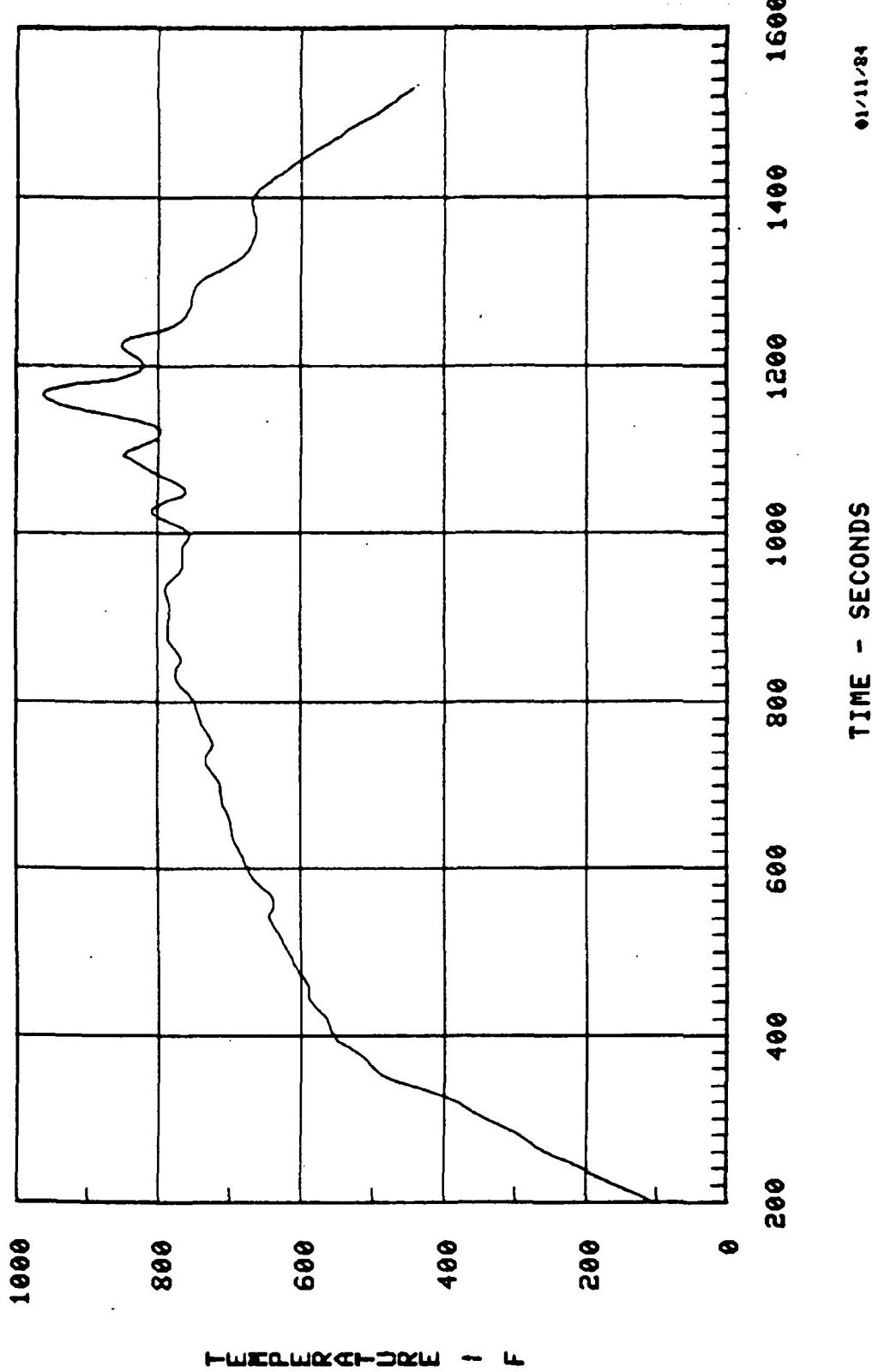
STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

U07T9913A



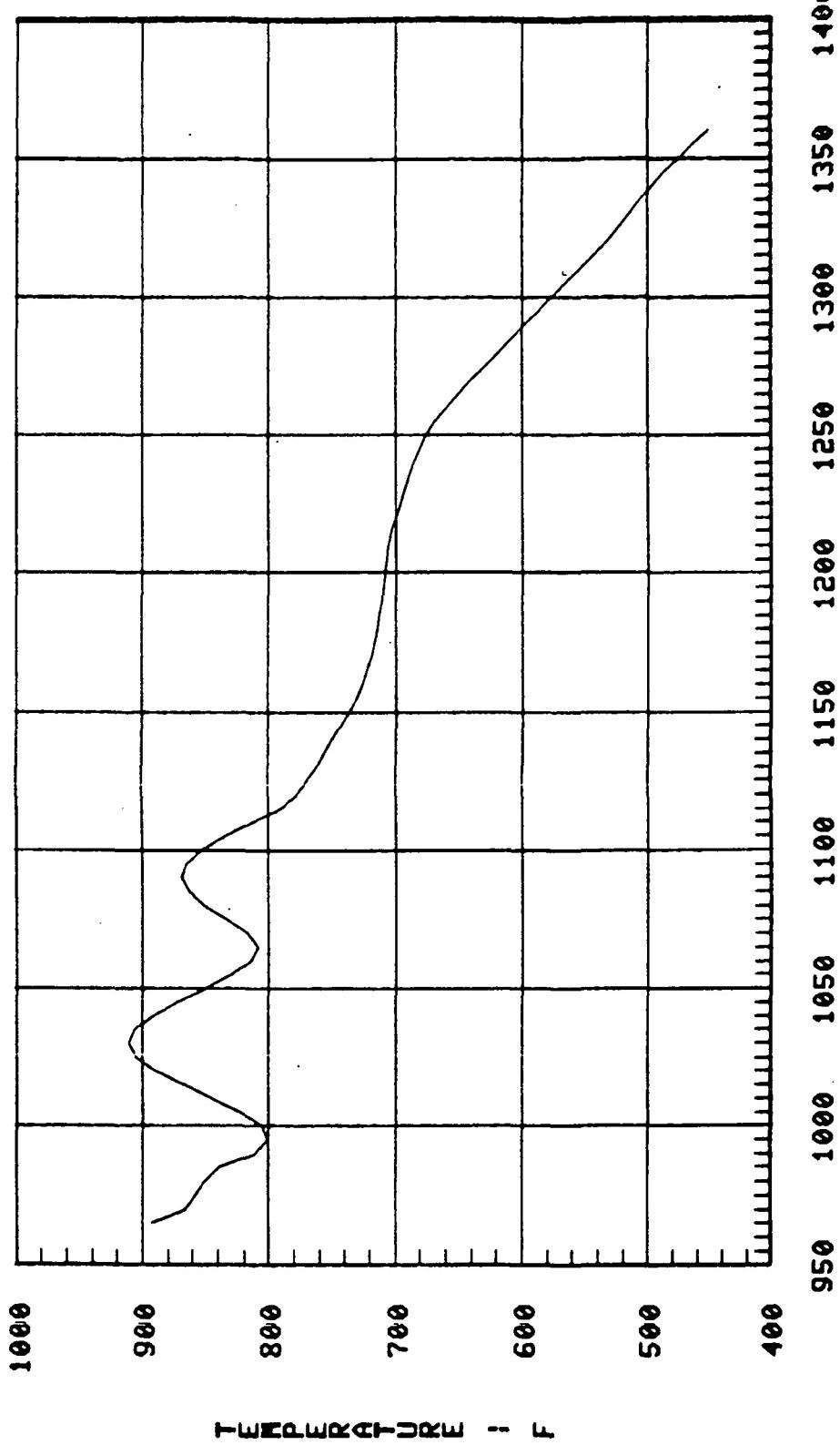
STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

U0779913A



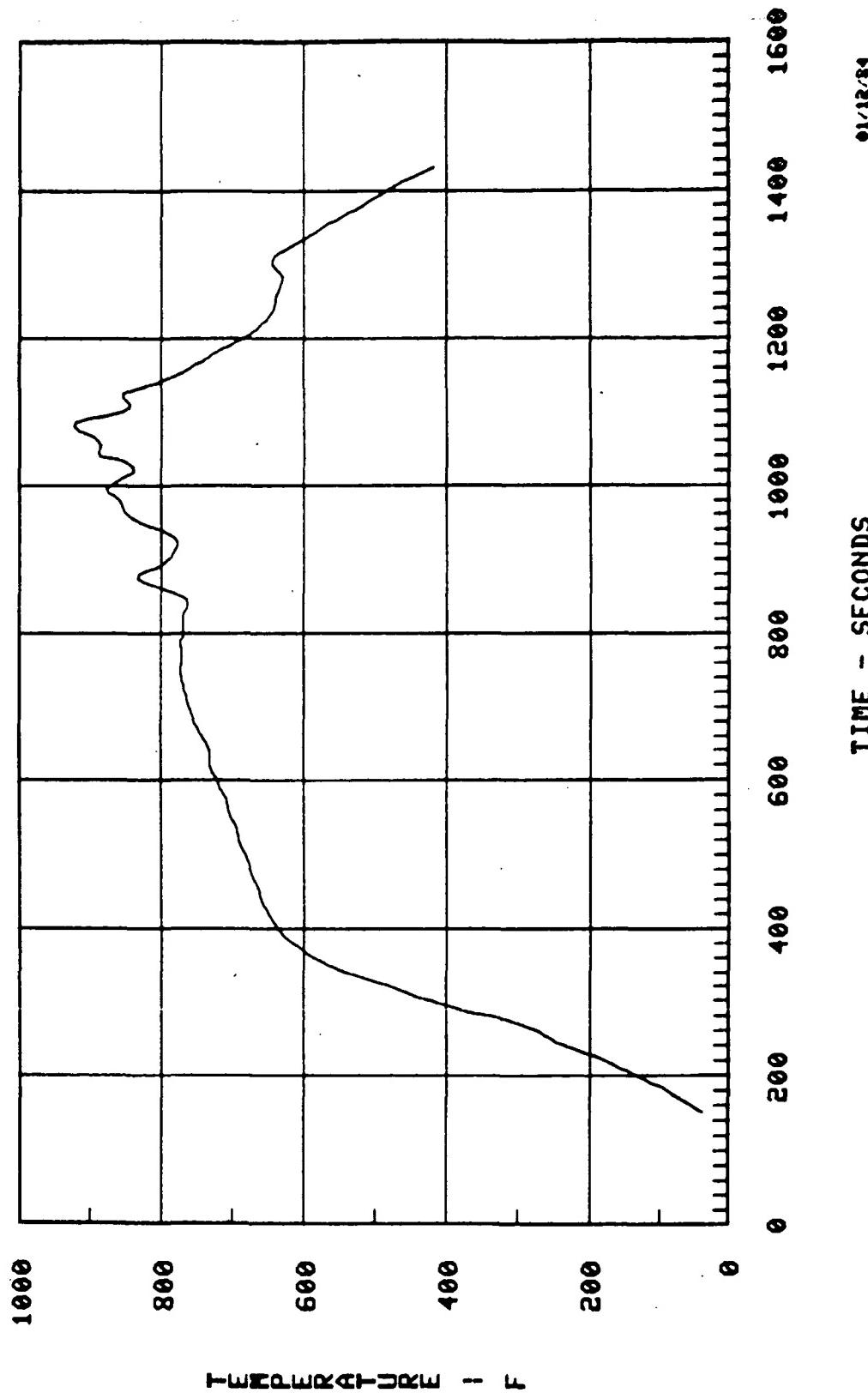
STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

U0779913A



STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.60) Z=440

U0779913A



01/12/84

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

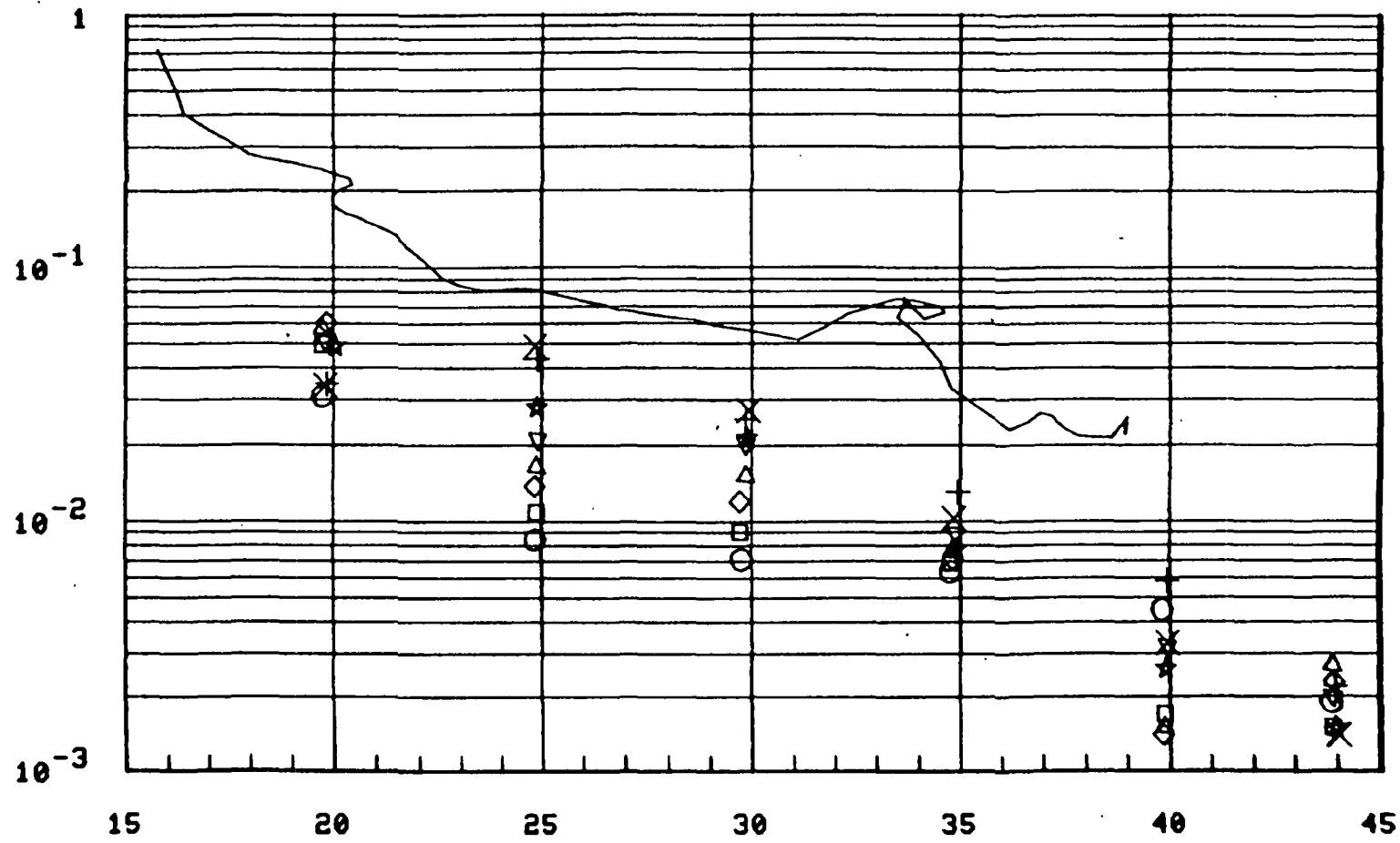
OH74 0.0175 SCALE RE = 0.5 E06
OH74 0.0175 SCALE RE = 1.0 E06
OH74 0.0175 SCALE RE = 1.5 E06
OH74 0.0175 SCALE RE = 2.0 E06
OH74 0.0175 SCALE RE = 2.5 E06
OH74 0.0175 SCALE RE = 3.0 E06
OH74 0.0175 SCALE RE = 3.5 E06
OH74 0.0175 SCALE RE = 3.7 E06

U07T9925A/H-REF 1065-1500 SEC

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FILE CODE - H/H-REF

B-471



ANGLE-OF-ATTACK - DEG

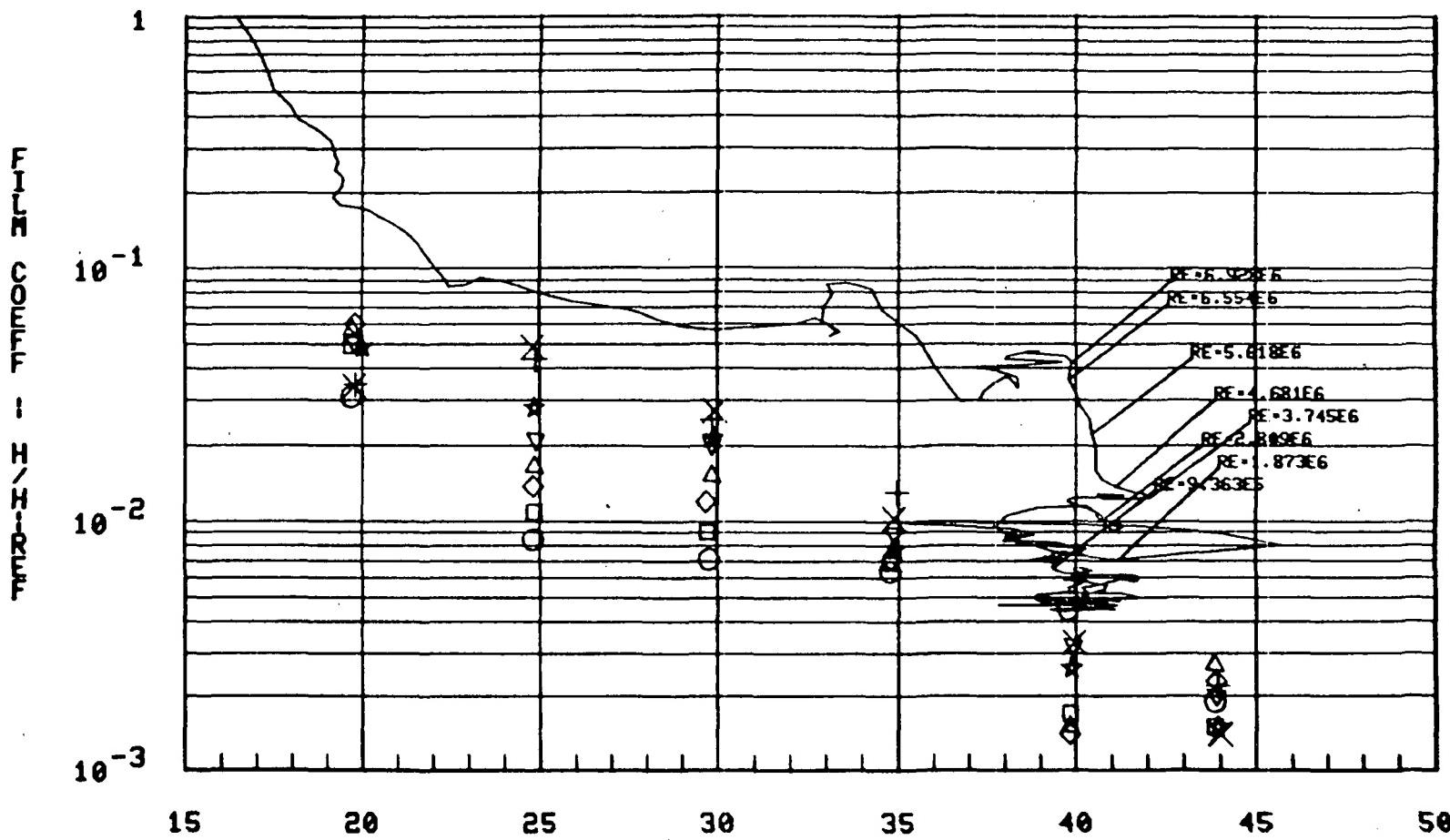
01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

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OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9925A/H-REF 200-1530 SEC



B-472

ANGLE-OF-ATTACK - DEG

01/11/84

BASE TIME - 87550236.000 SEC.

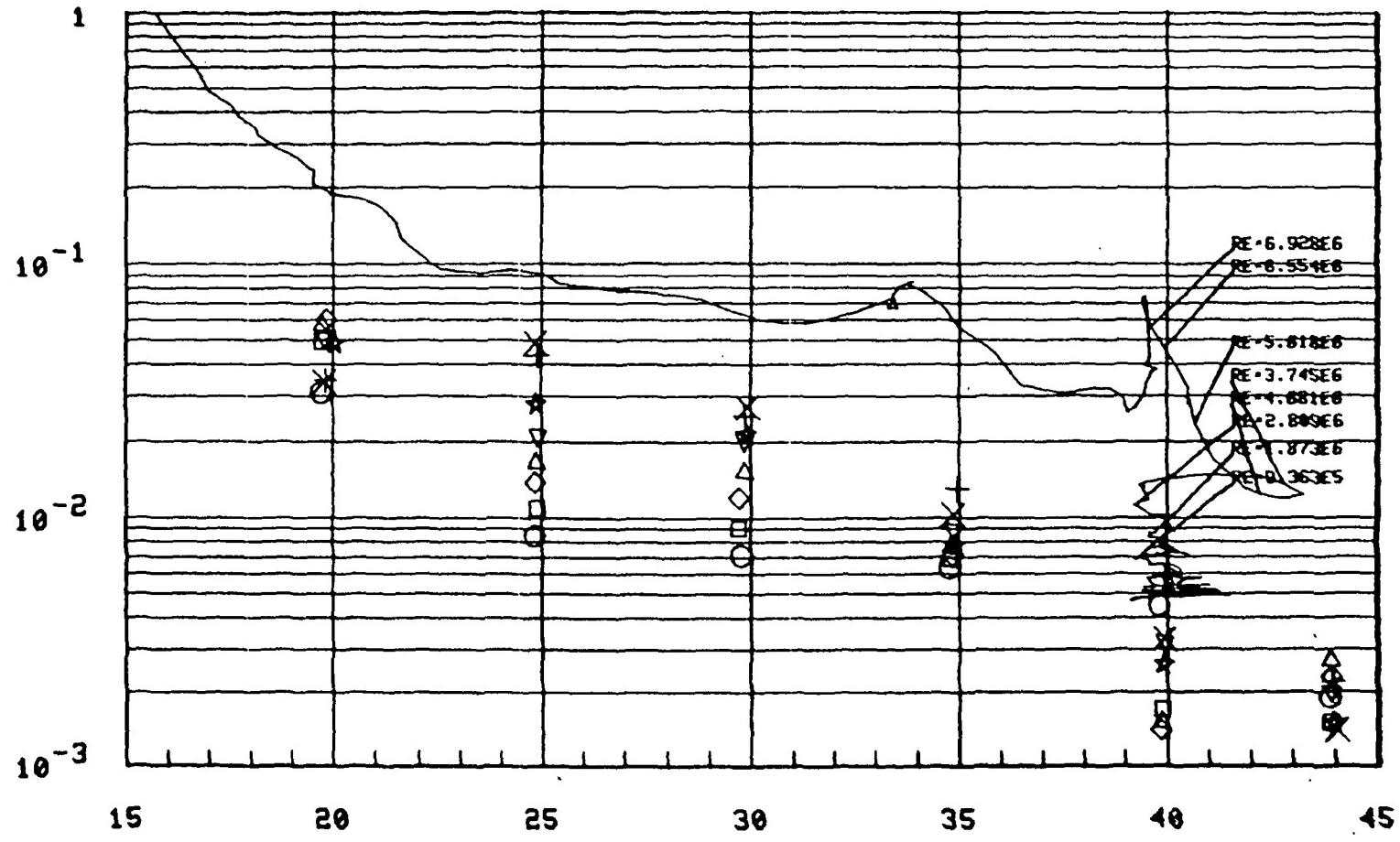
STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

O □ ◇ △ ★ + X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9925A/H-REF 200-1440 SEC

LINE COMPT - H\H2001



B-473

ANGLE-OF-ATTACK - DEG

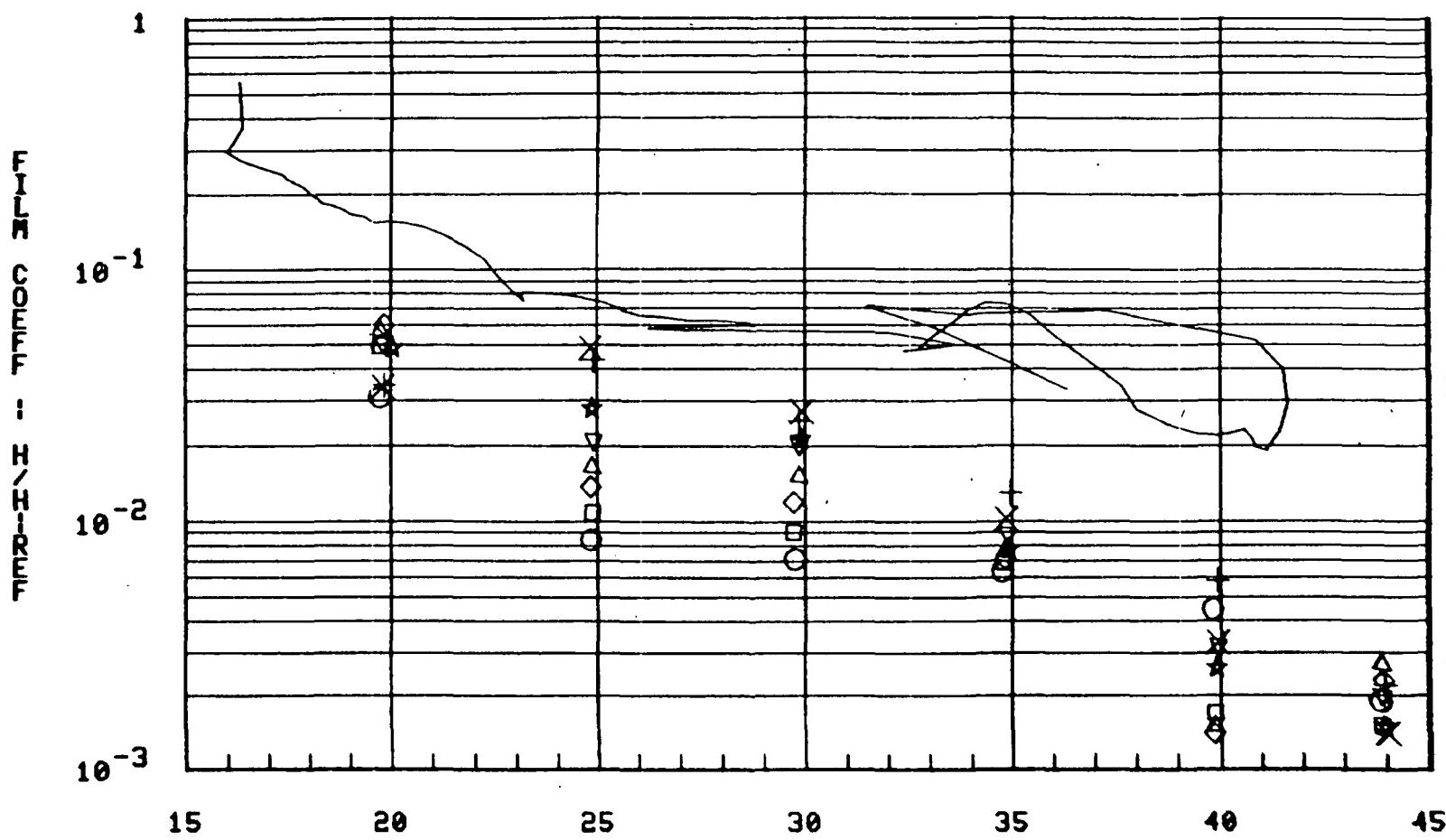
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

○ ◇ △ ★ + X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9925A/H-REF 965-1360 SEC



01/12/84
 ANGLE-OF-ATTACK - DEG

BASE TIME = 1604423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

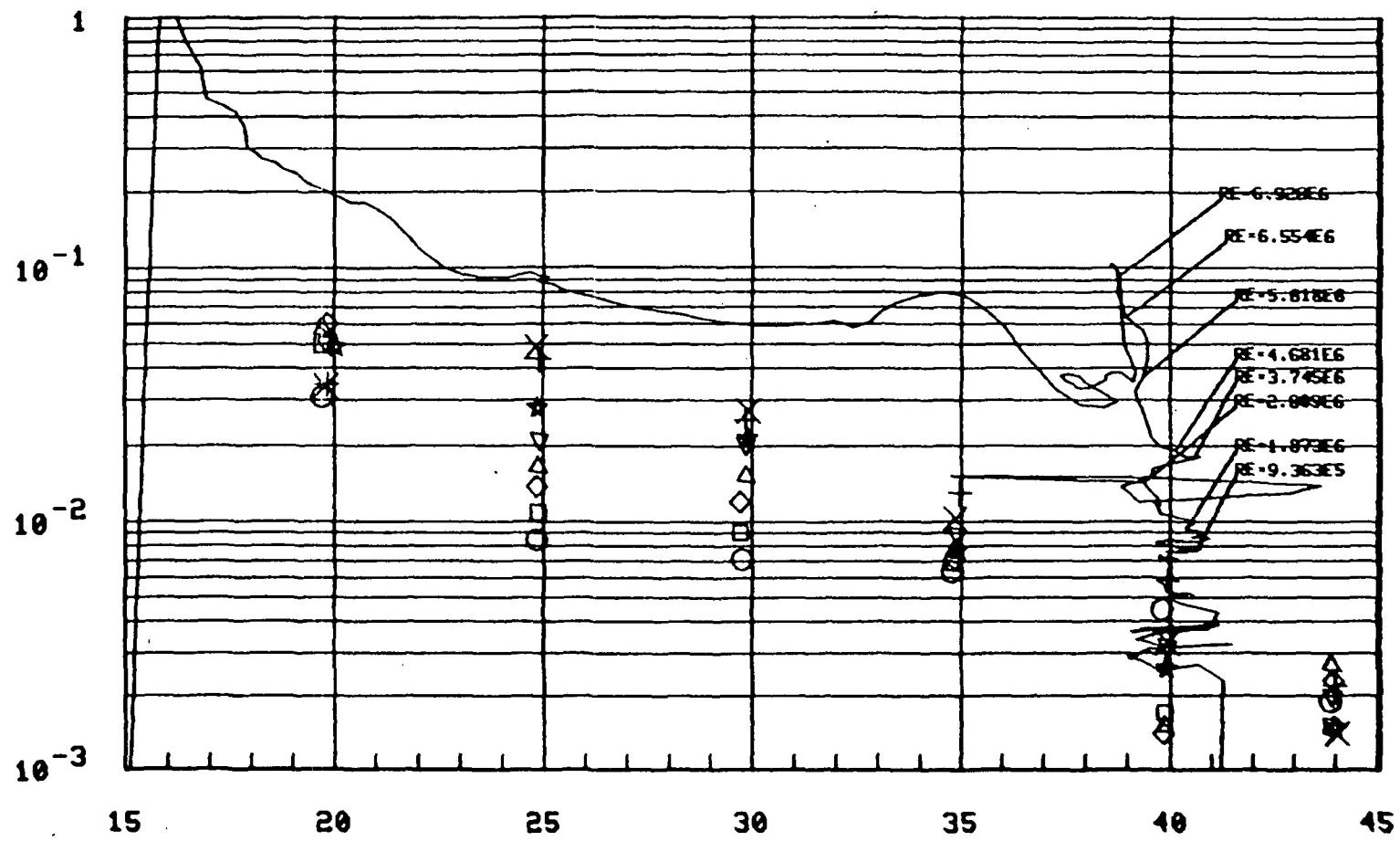
○□◇△★×

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9925A/H-REF 150-1430 SEC

TIME CONLL - H\H...HLL

B-475

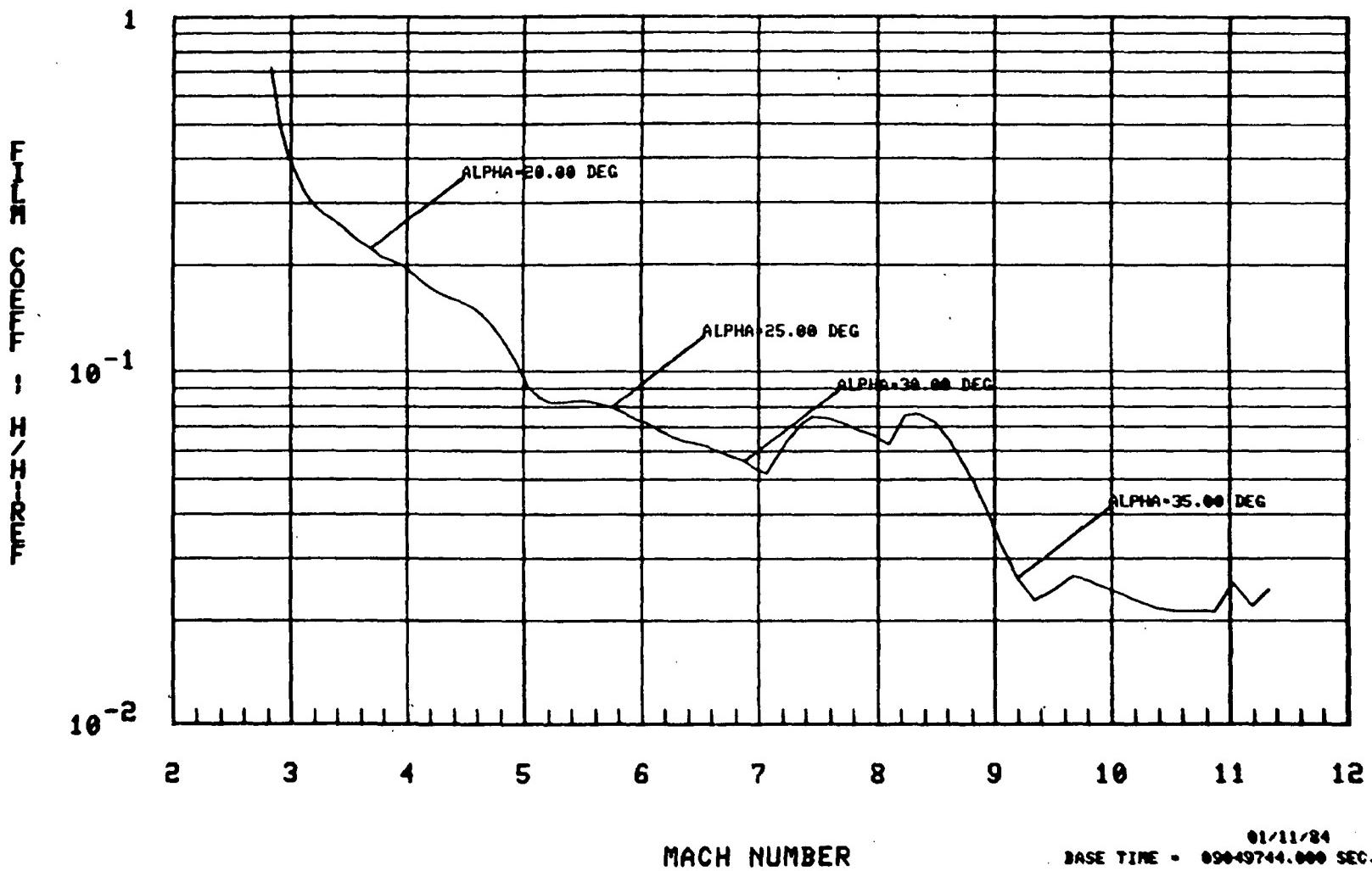


ANGLE-OF-ATTACK - DEG

01/12/84
 BASE TIME • 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

U07T9925A/H-REF 1065-1500 SEC



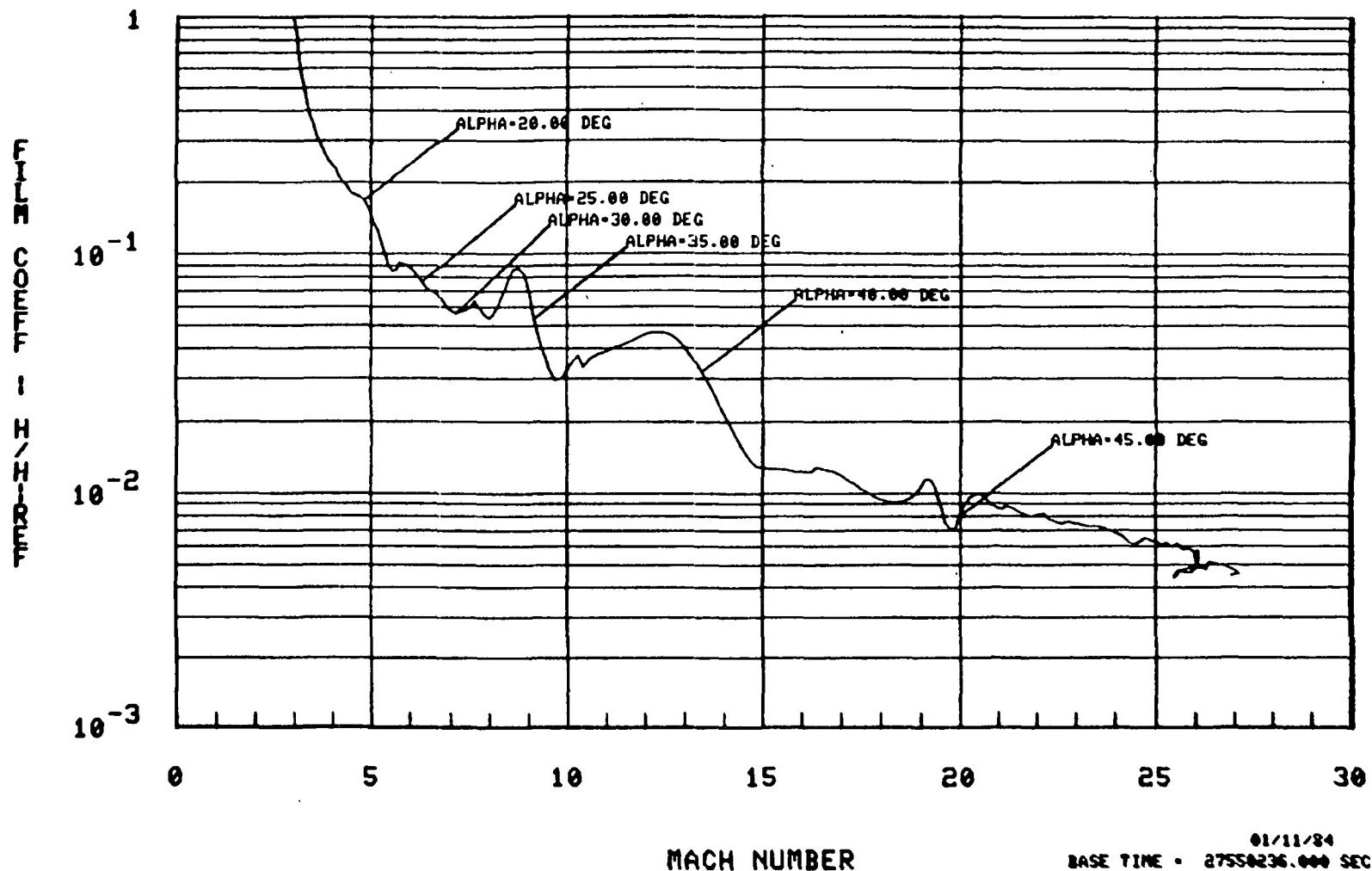
B-476

MACH NUMBER

01/11/84
BASE TIME = 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

U07T9925A/H-REF 200-1530 SEC

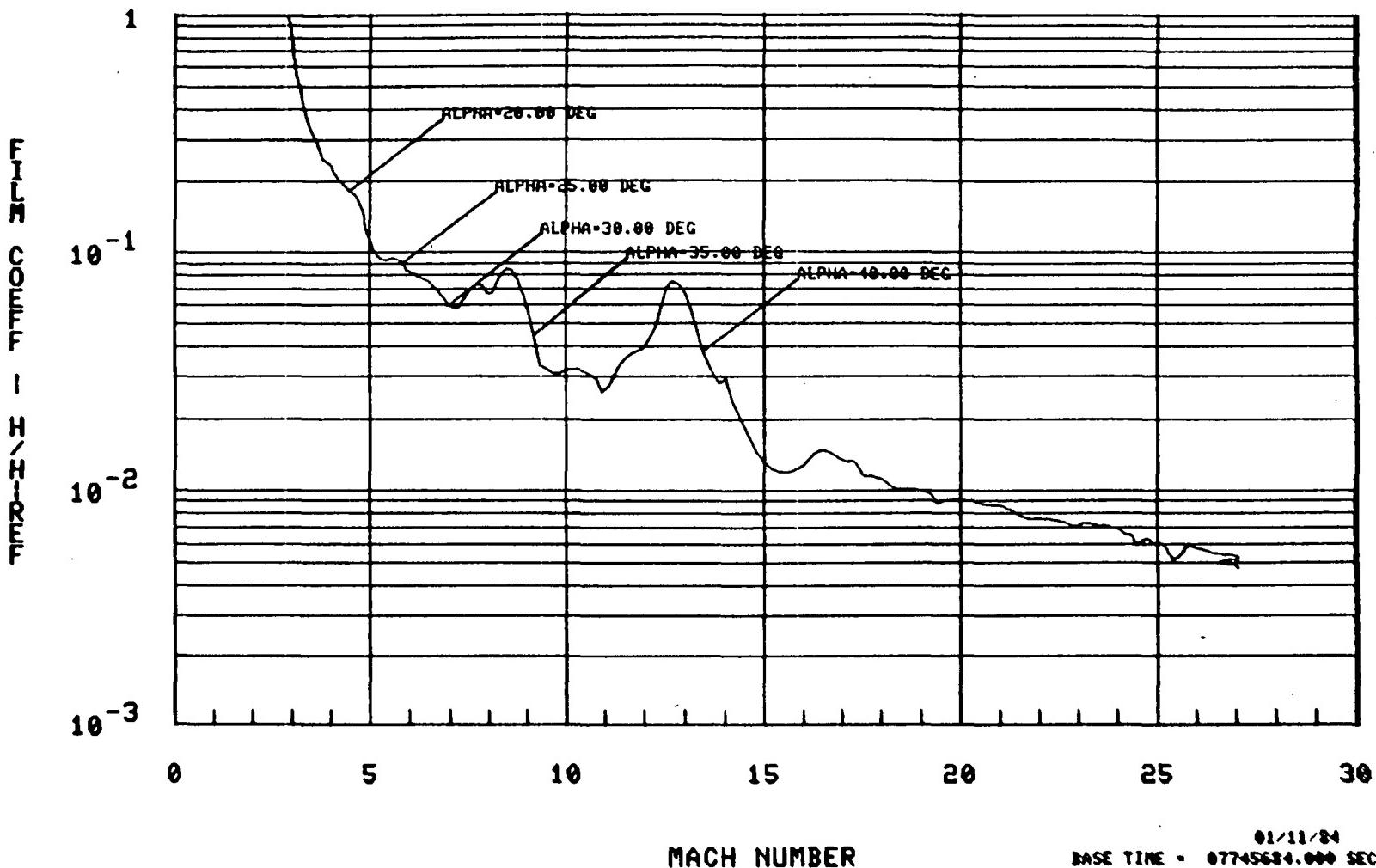


01/11/84

BASE TIME • 27550230.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

U07T9925A/H-REF 200-1440 SEC



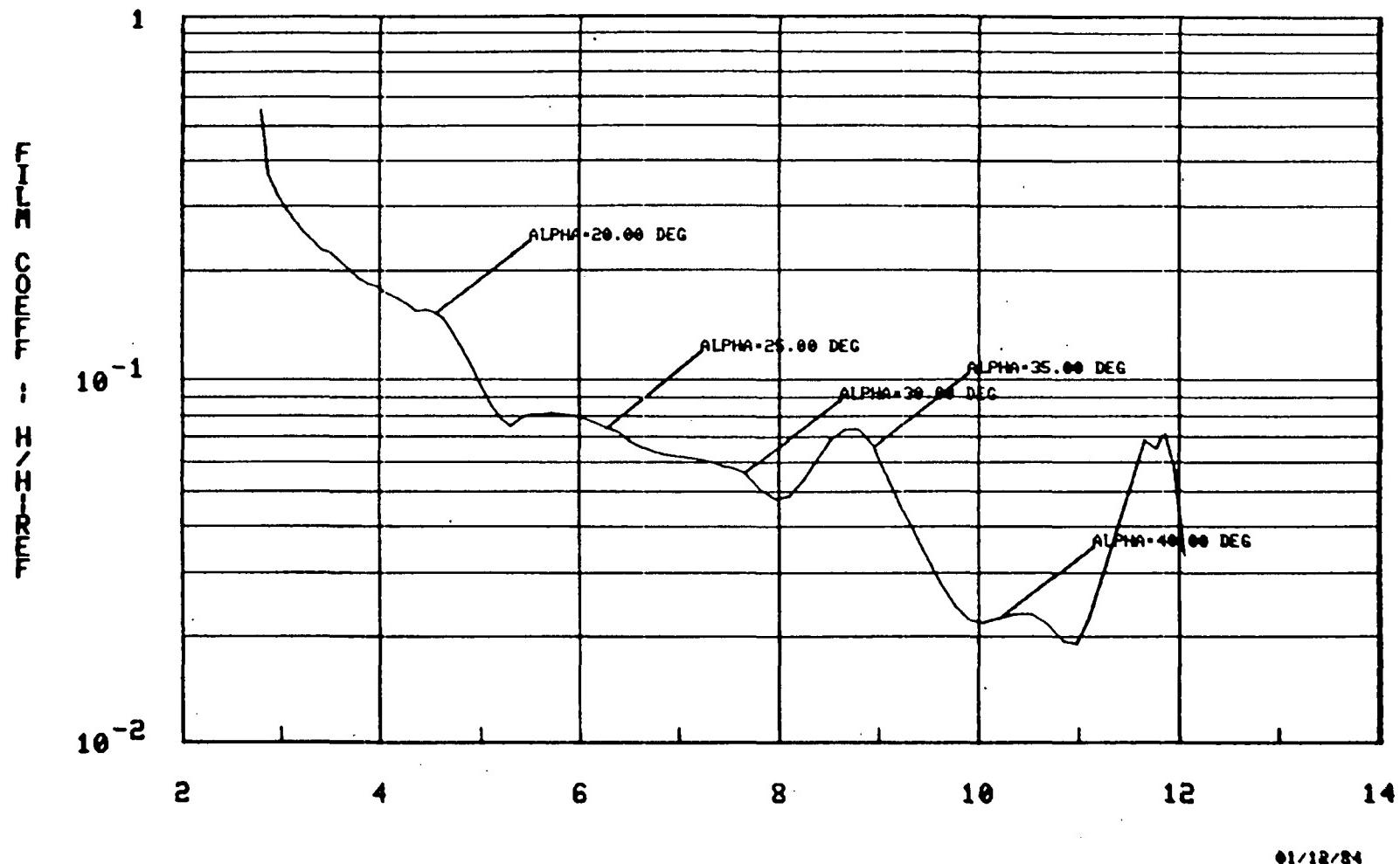
B-478

MACH NUMBER

01/11/84
BASE TIME - 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

U07T9925A/H-REF 965-1360 SEC

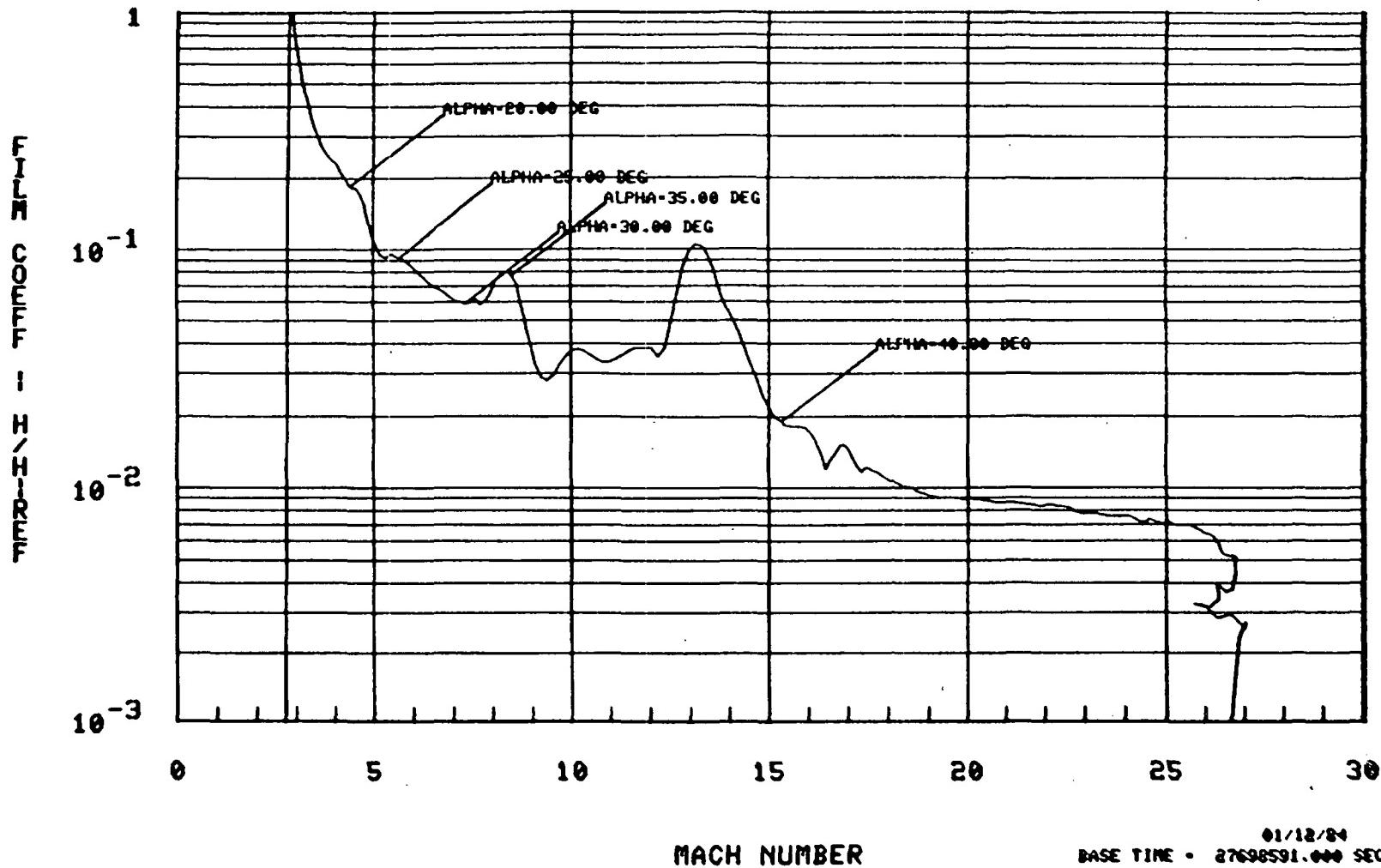


MACH NUMBER

01/18/84
BASE TIME = 1604423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

V07T9925A/H-REF 150-1430 SEC



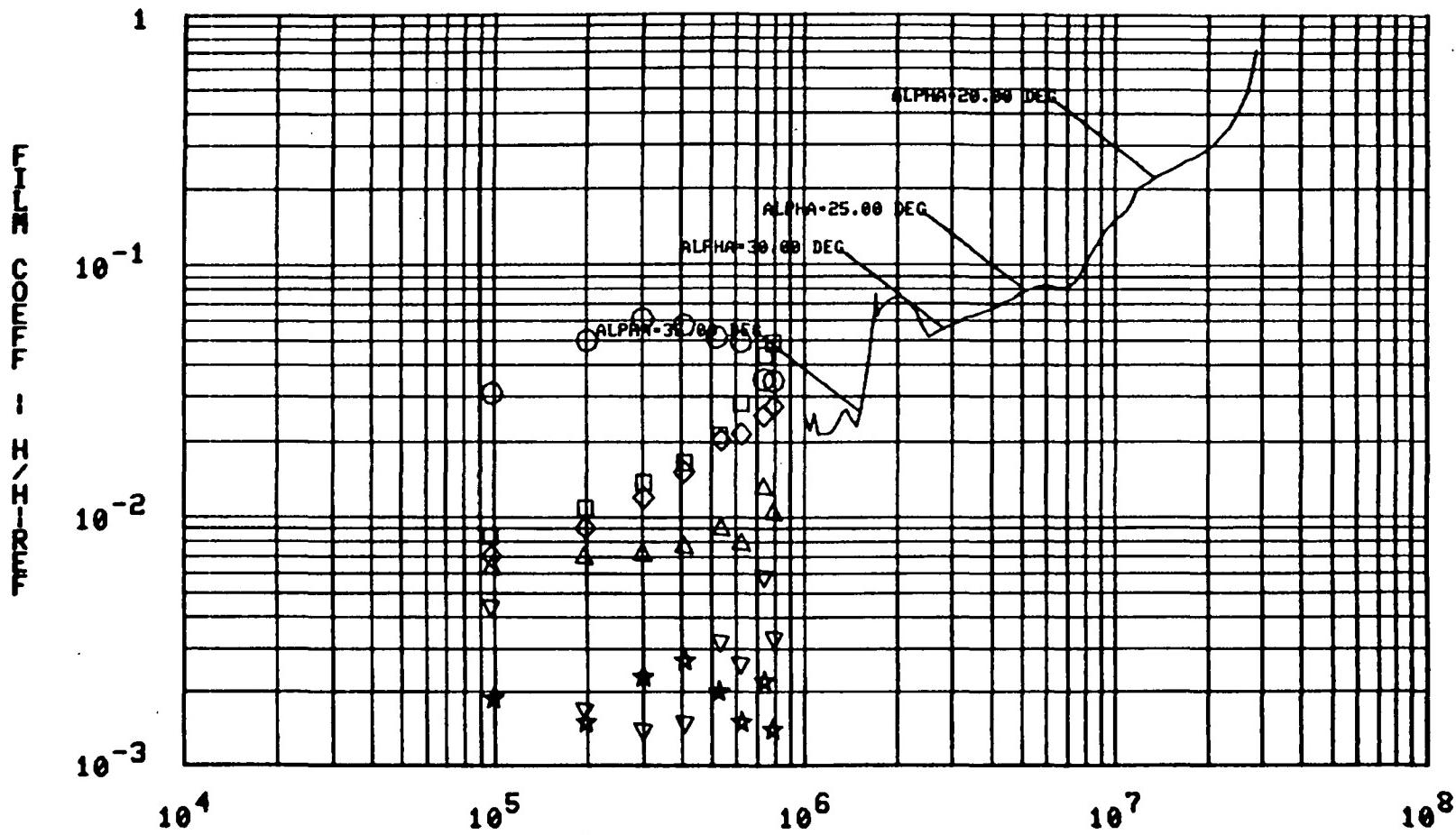
01/12/84
BASE TIME • 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9925A/H-REF 1065-1500 SEC



B-481.

REYNOLDS NUMBER (NS)

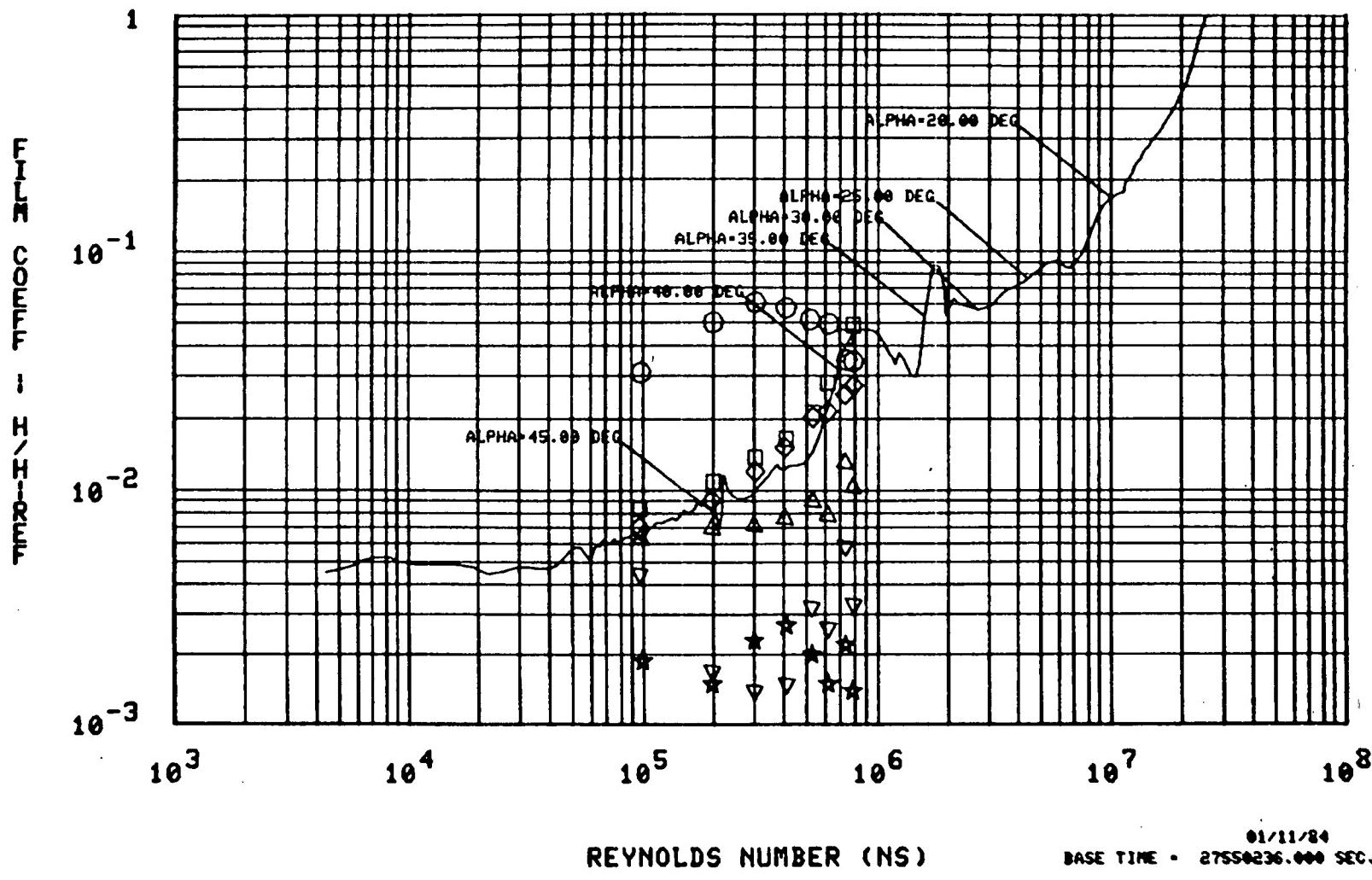
01/11/84
 BASE TIME - 09049744.000 SEC.

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9925A/H-REF 200-1530 SEC



B-482

REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 27550236.000 SEC.

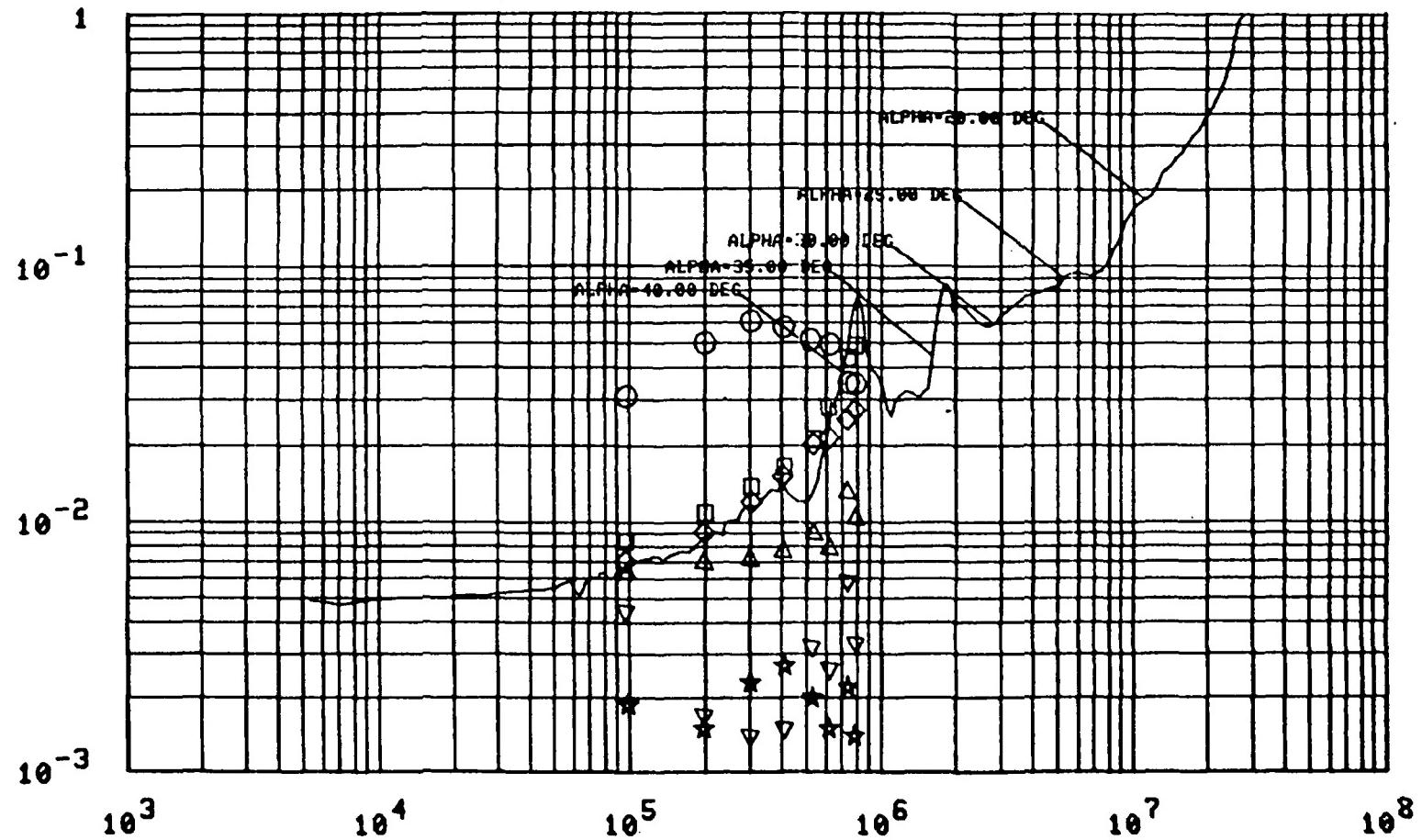
STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

○ □ ◇ △ ★

OH74 ALPHA = 20 DEGREES
OH74 ALPHA = 25 DEGREES
OH74 ALPHA = 30 DEGREES
OH74 ALPHA = 35 DEGREES
OH74 ALPHA = 40 DEGREES
OH74 ALPHA = 44 DEGREES

U07T9925A/H-REF 200-1440 SEC

FILE SOURCE - H/H-REF



B-483

REYNOLDS NUMBER (NS).

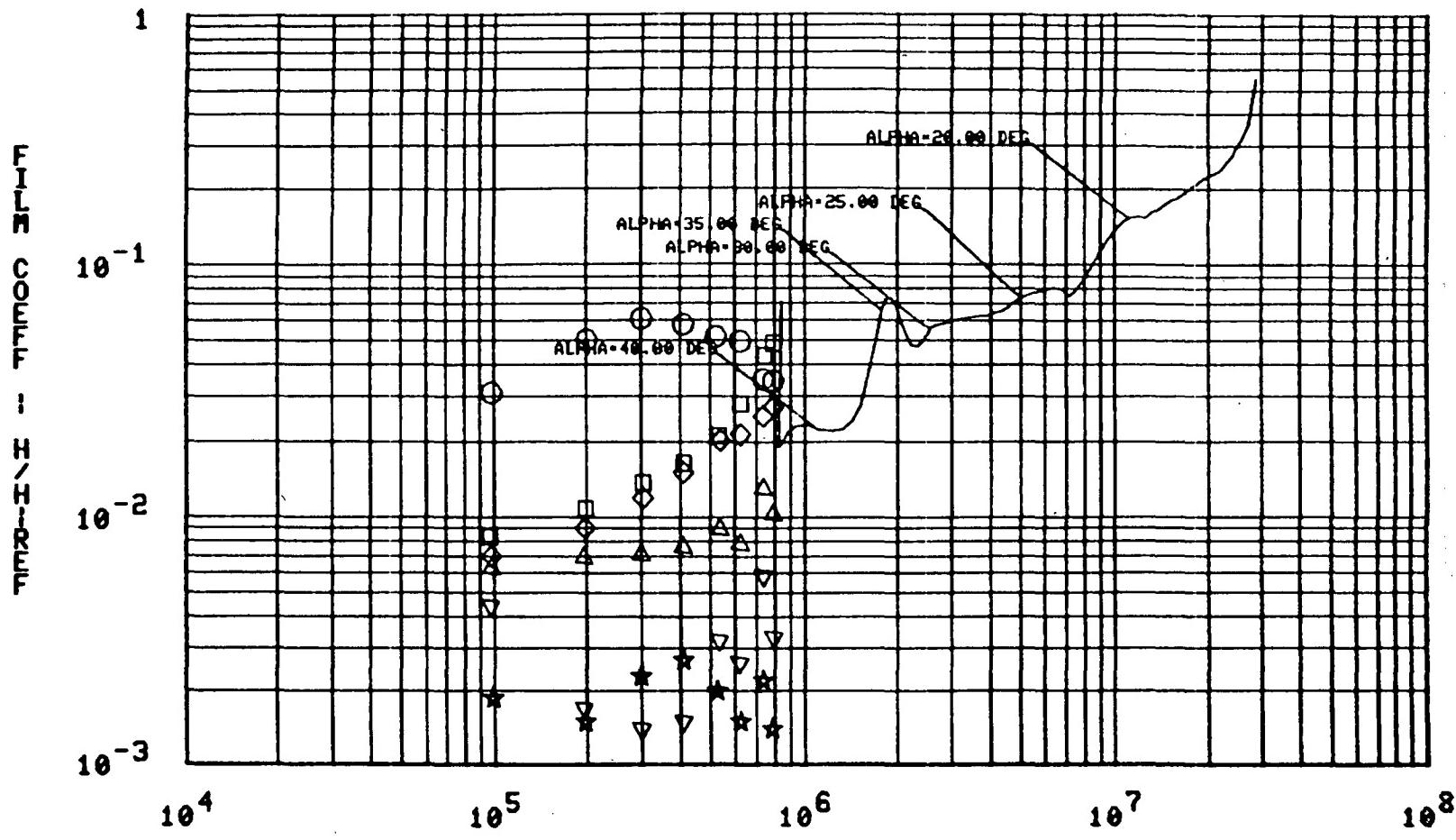
01/21/84
BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

○ ◇ △ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U67T9925A/H-REF 965-1360 SEC



B-484

REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 1604423.000 SEC.

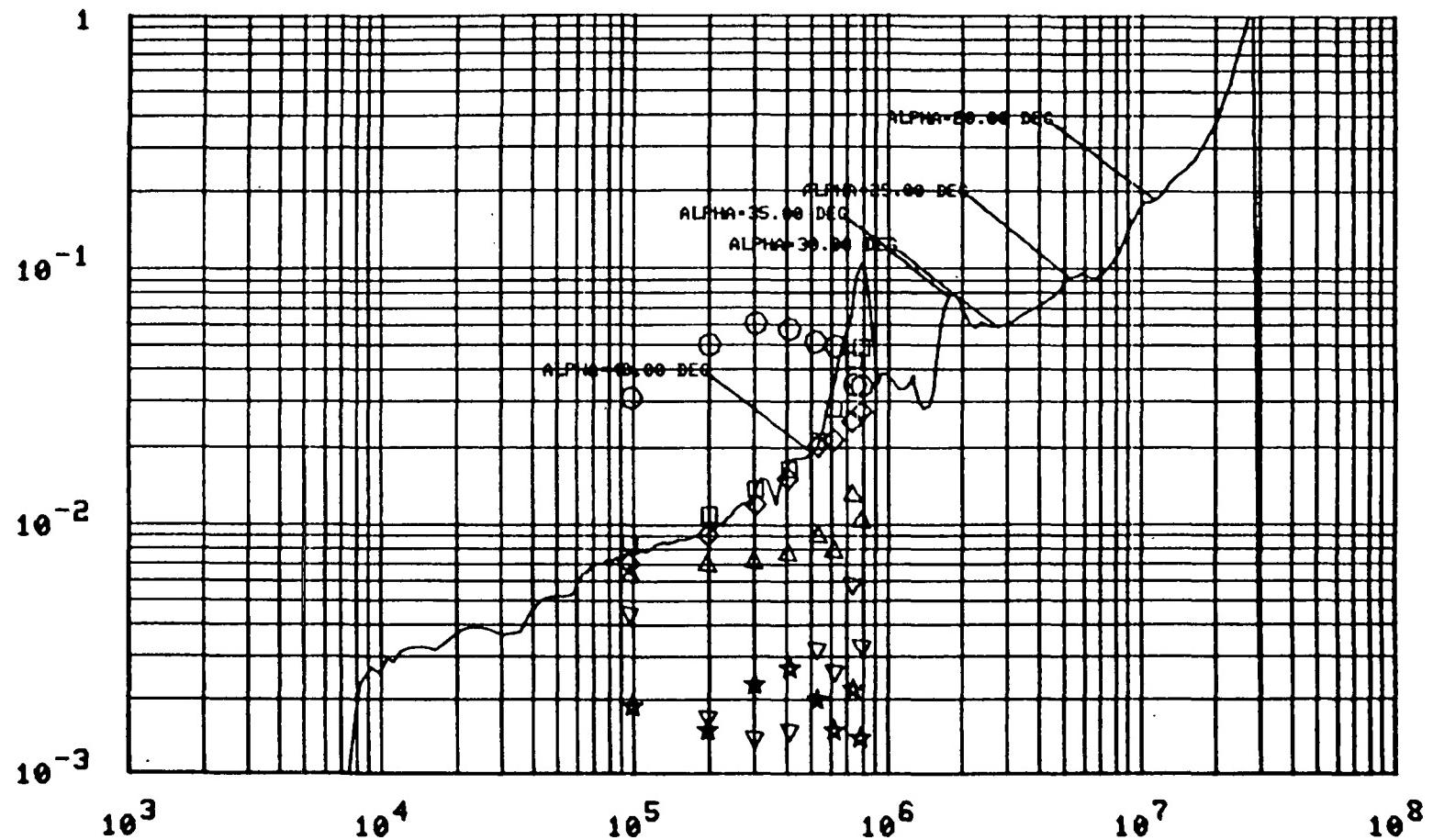
STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9925A/H-REF 150-1430 SEC

LINE COUNT - H\H--QWU

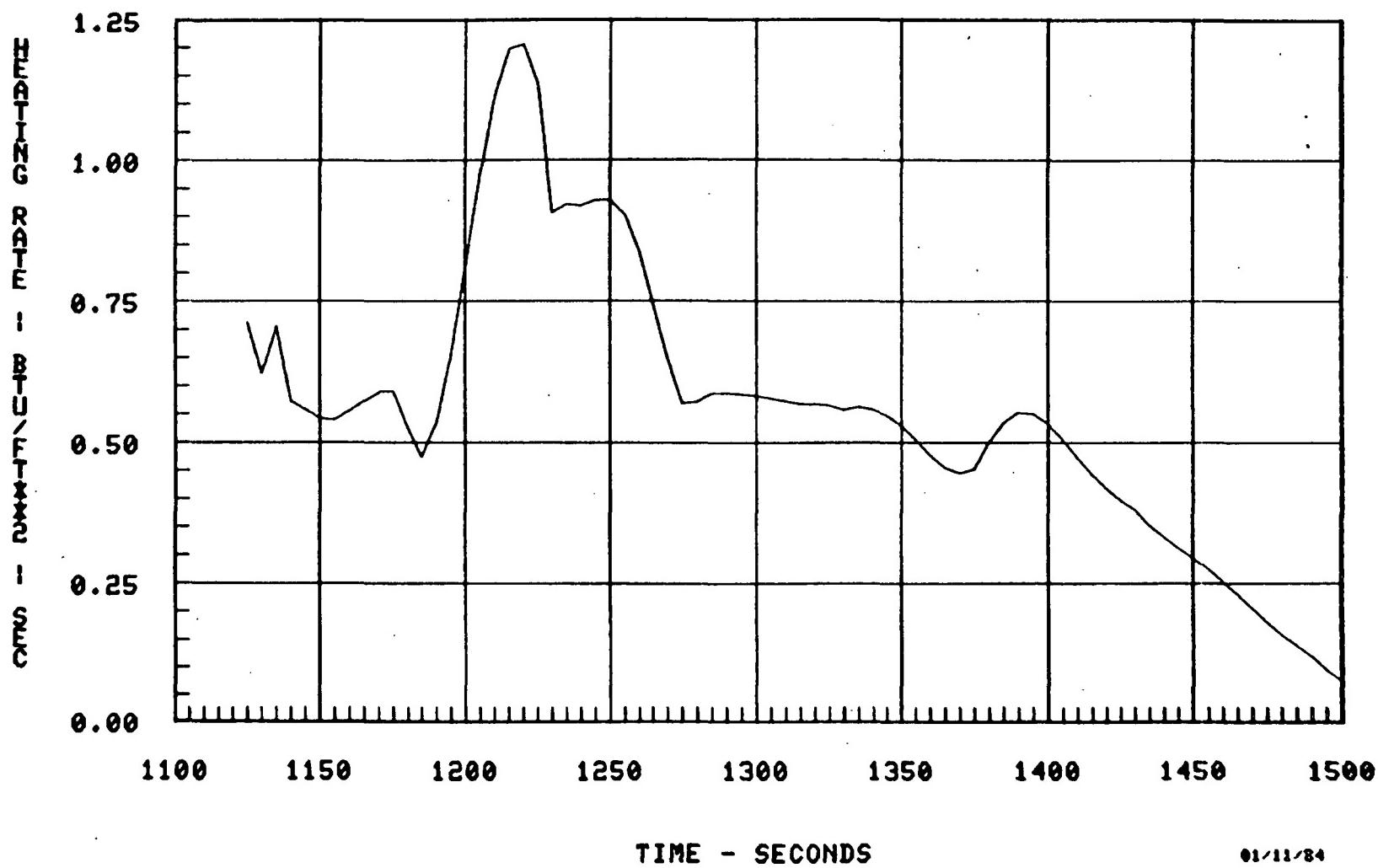


REYNOLDS NUMBER (NS)

01/12/84
 BASE TIME = 27698591.000 SEC.

STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

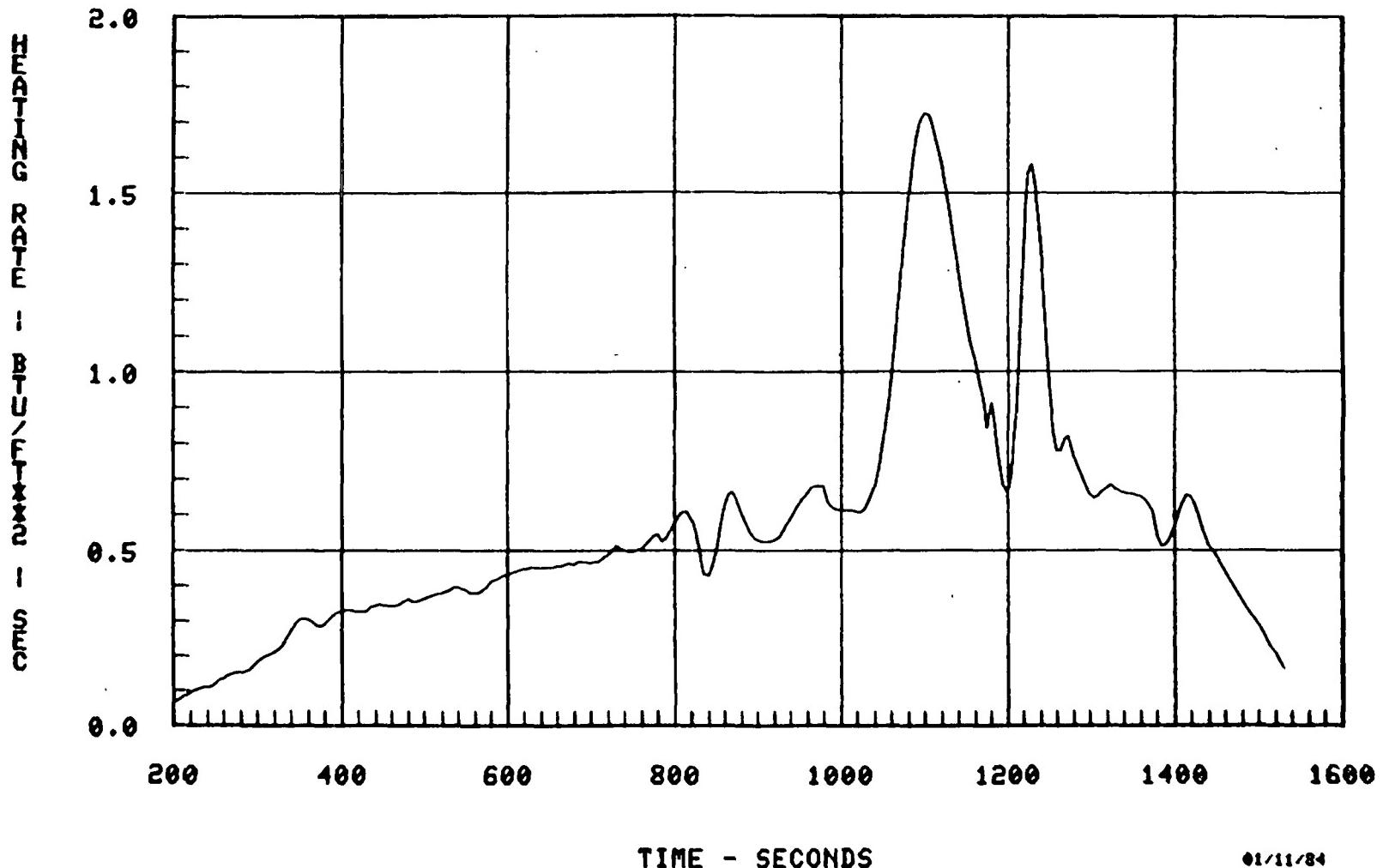
U07T9925A



01/11/84

STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

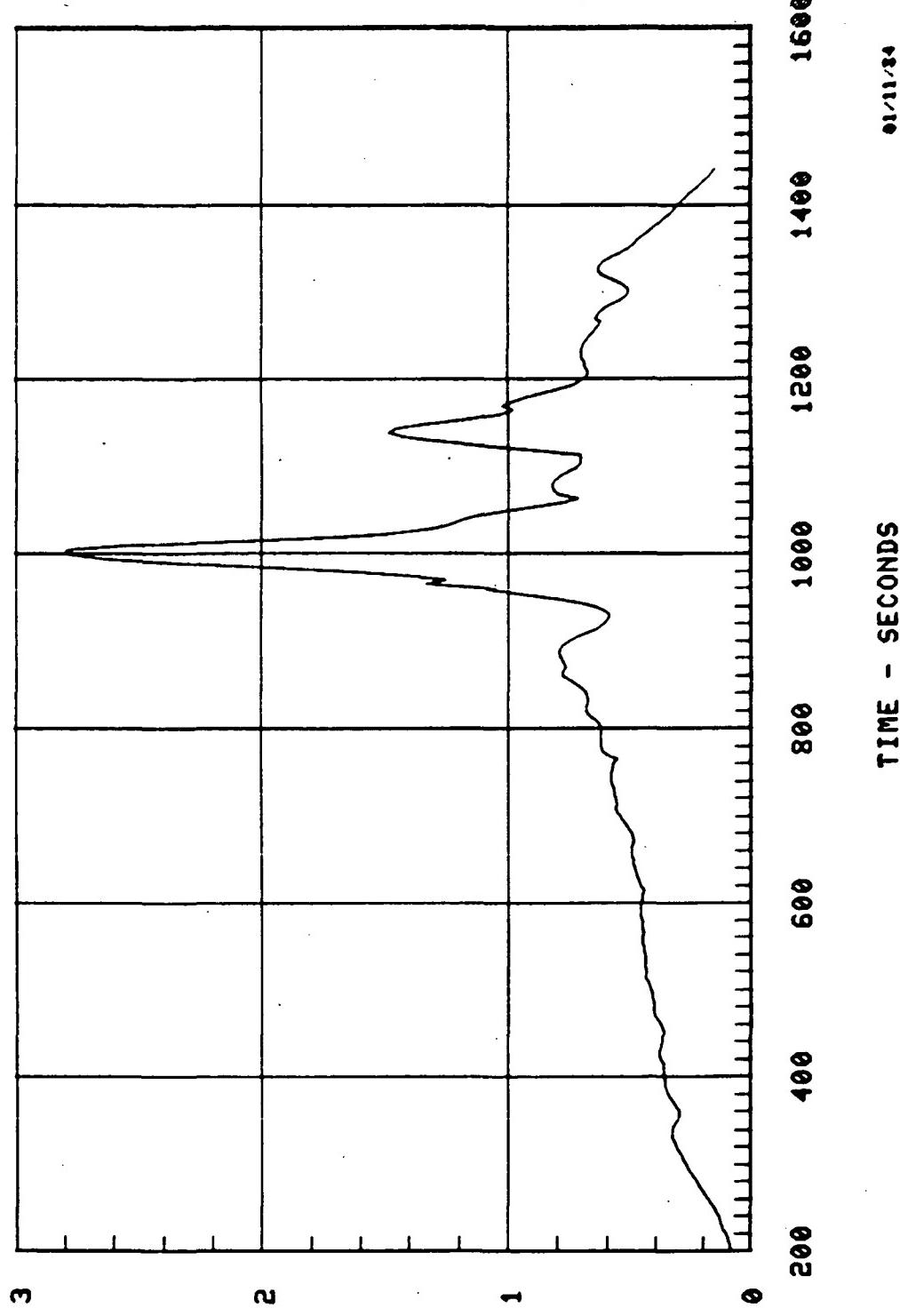
U07T9925A



01/11/84

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

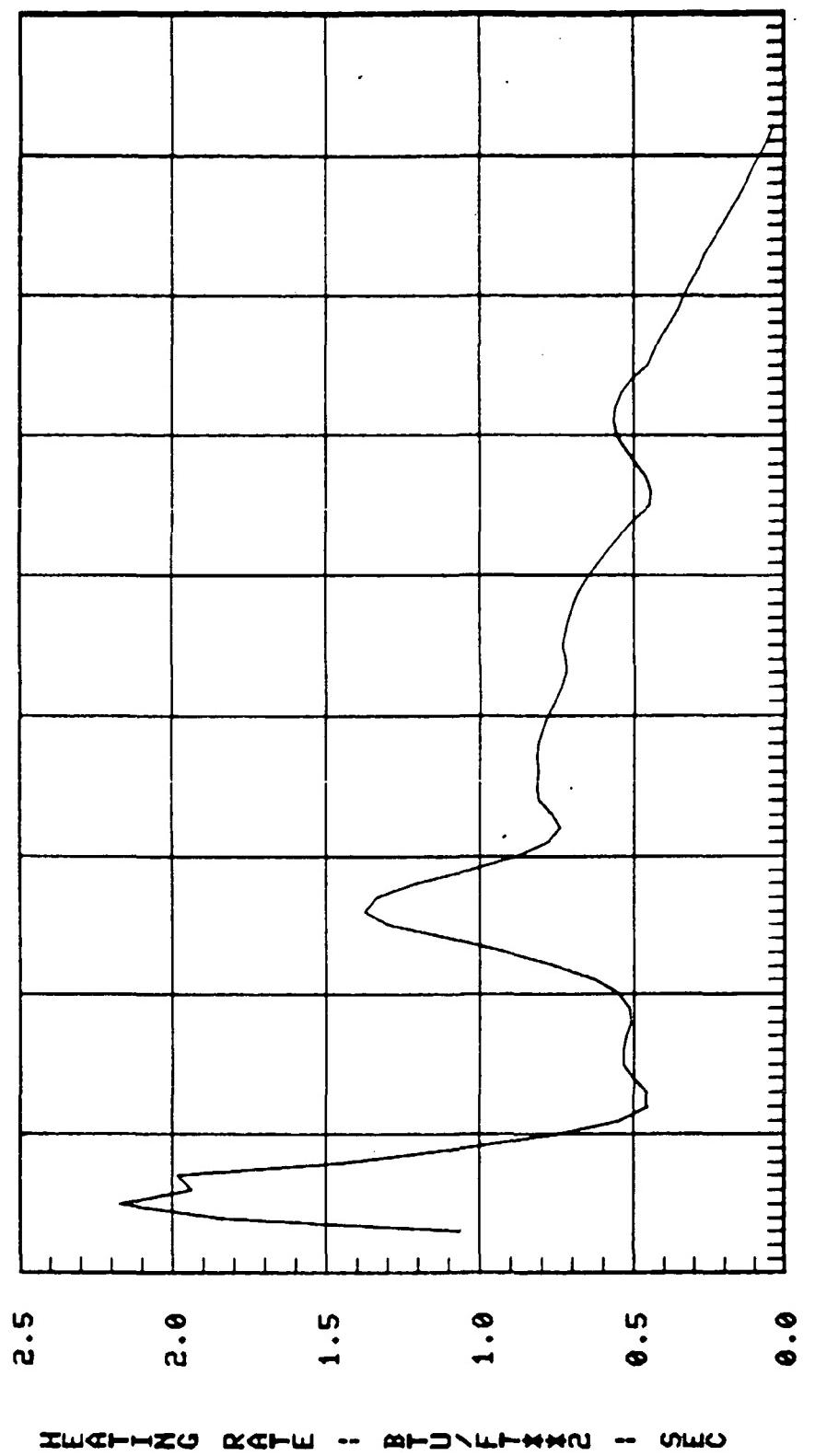
U0719935A



INCHES PER SEC - MILE/HOUR - SEC

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

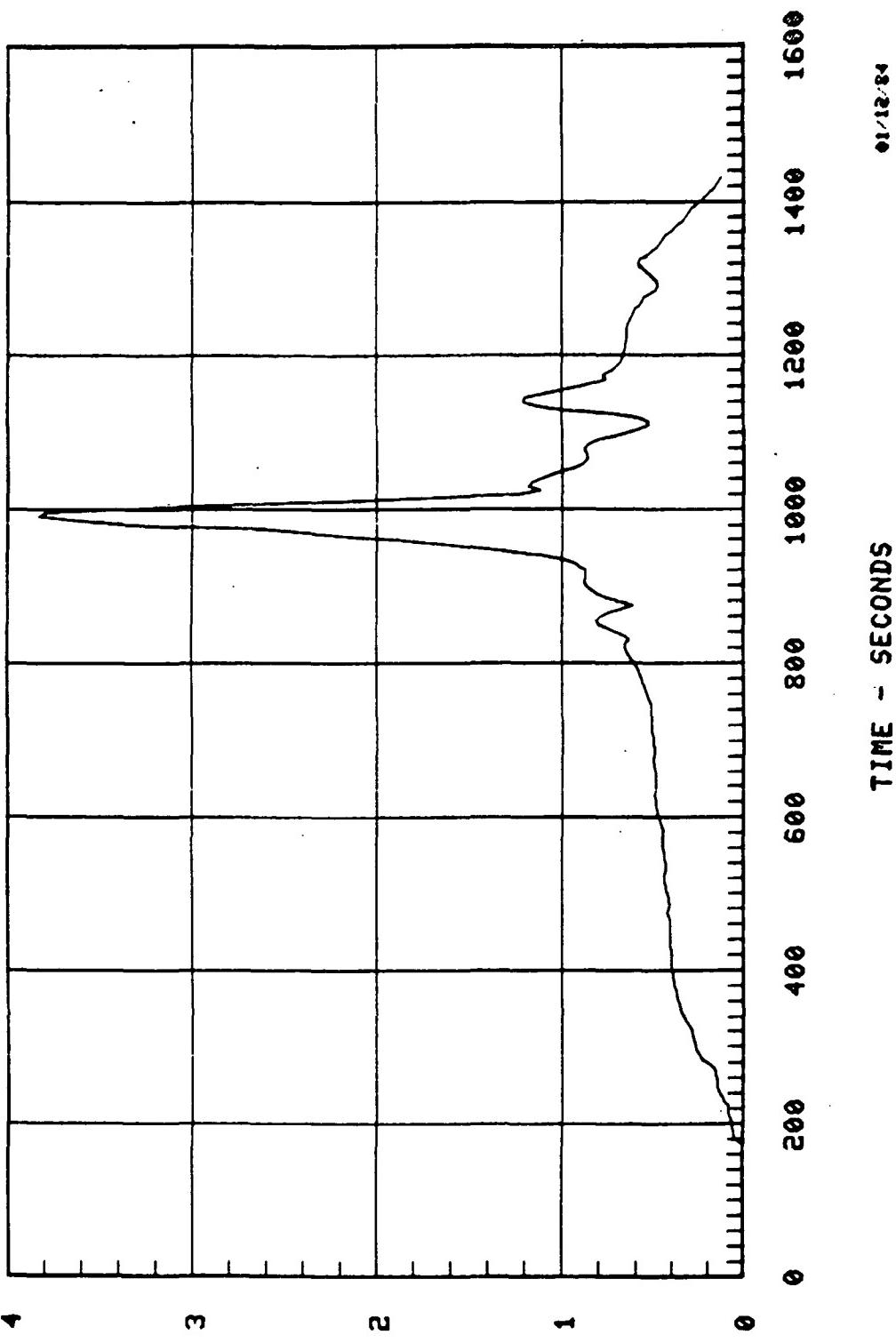
48779925A



01/12/84

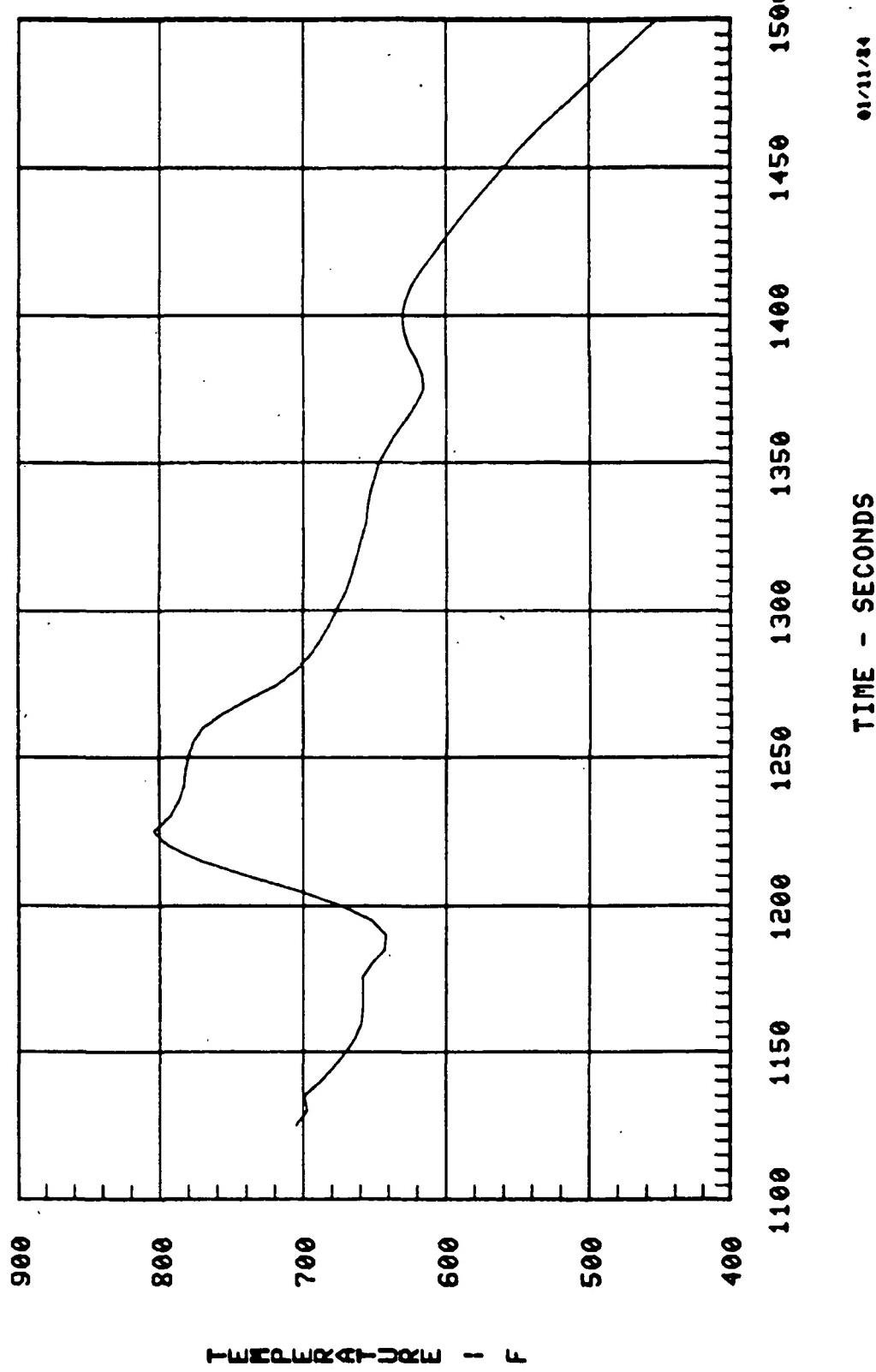
STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

U0779925A



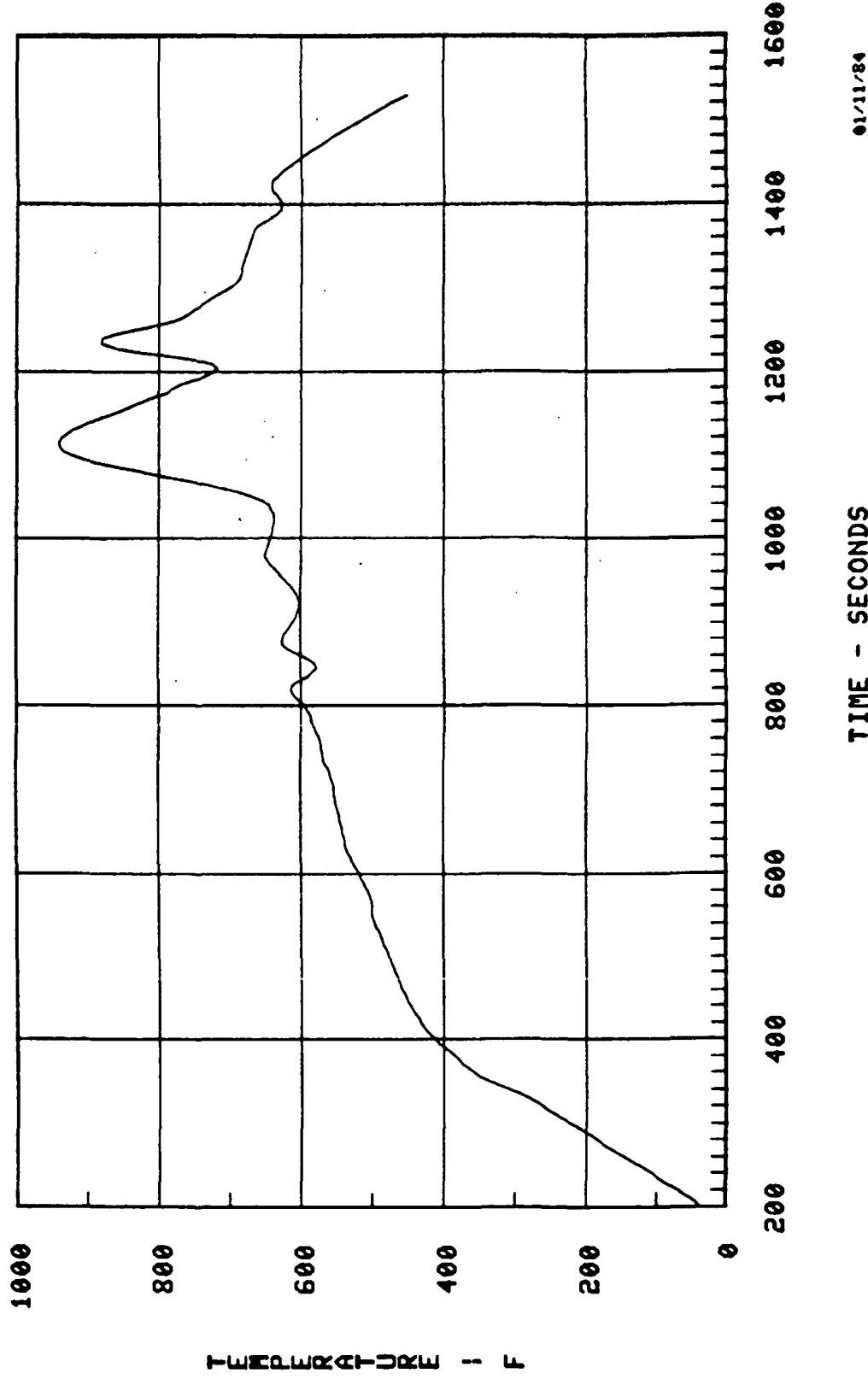
STS-1 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

48719925A



STS-2 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

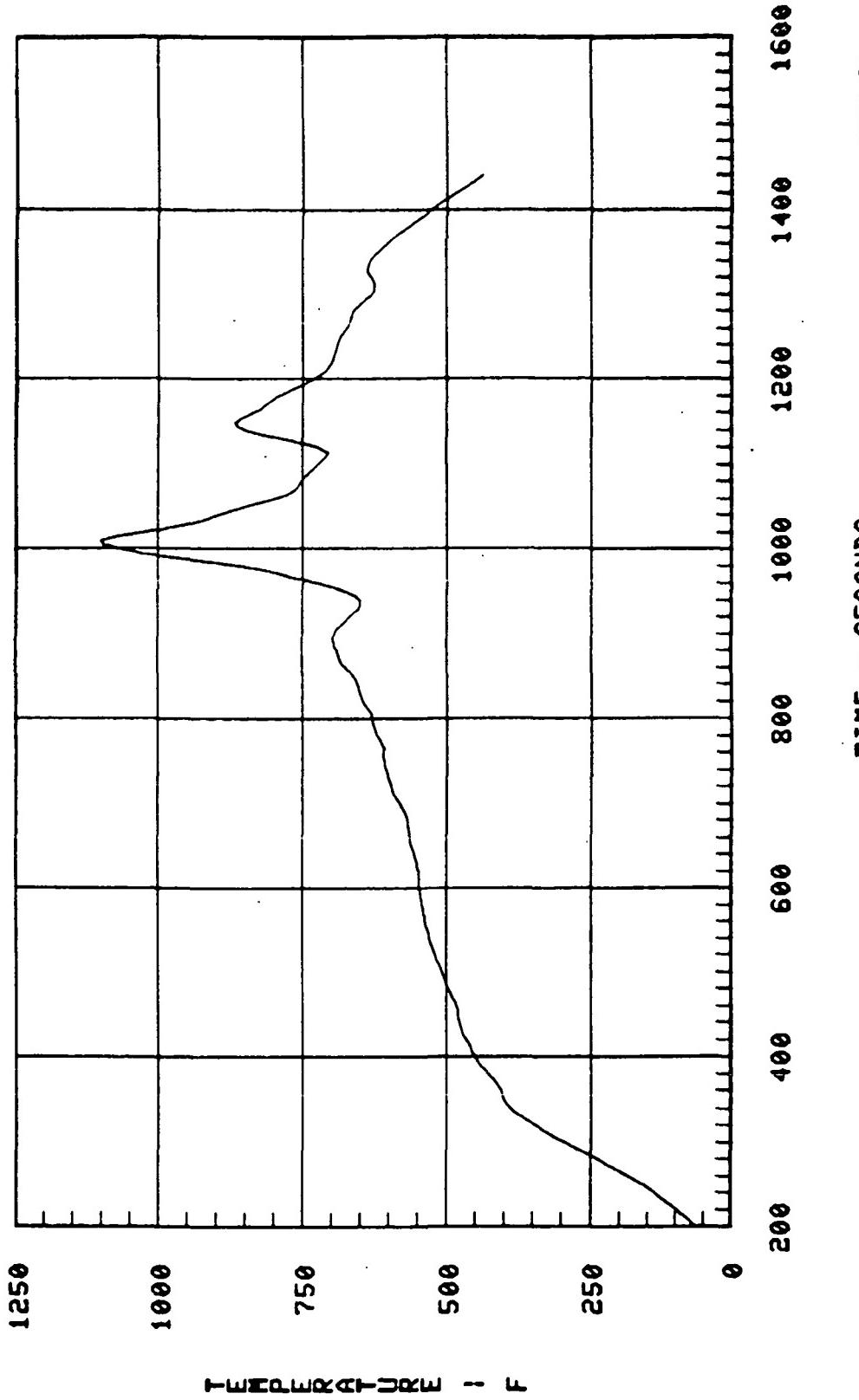
U0779925A



01/11/84

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

U07T9925A

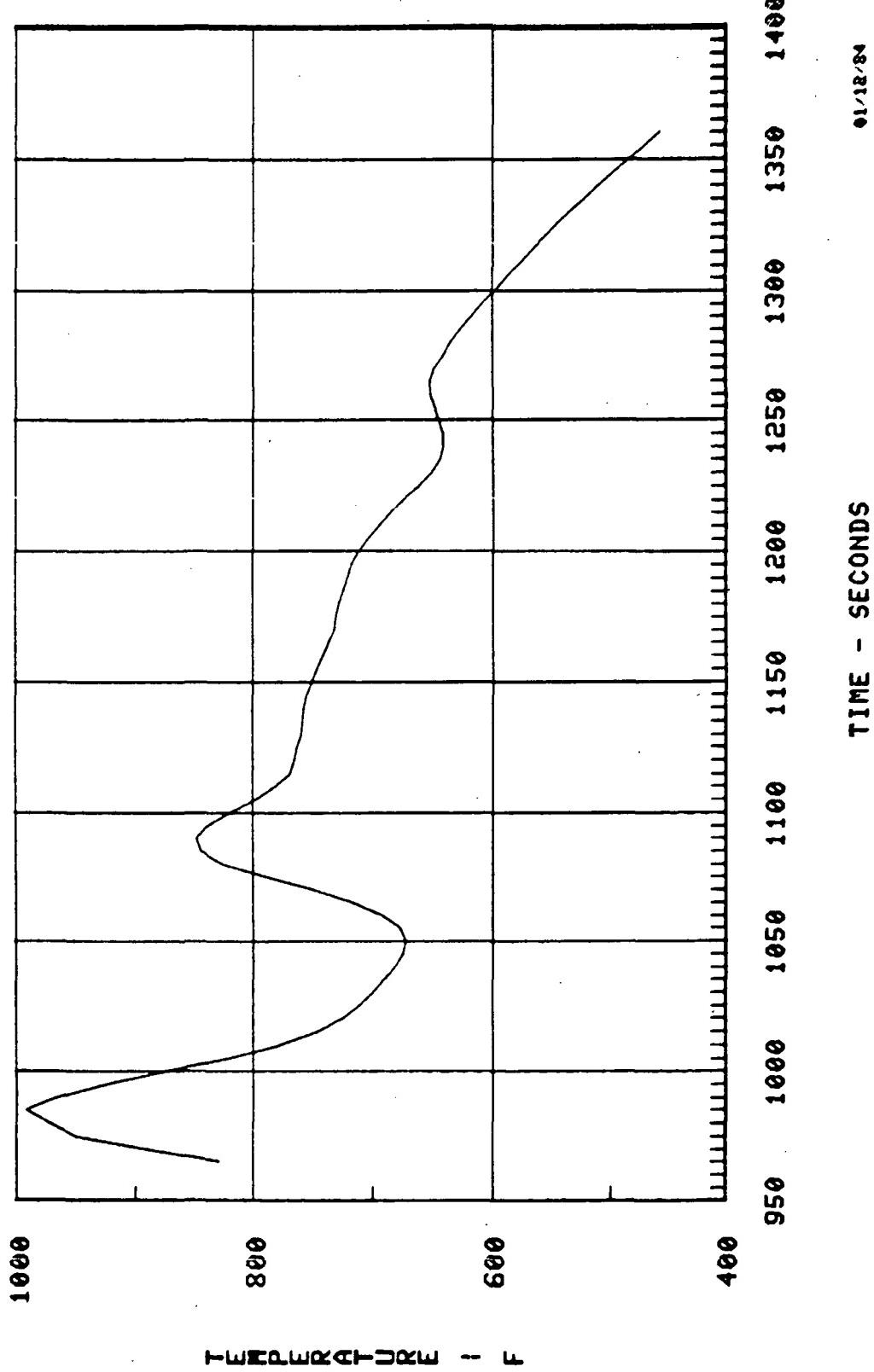


B-493

01/11/84

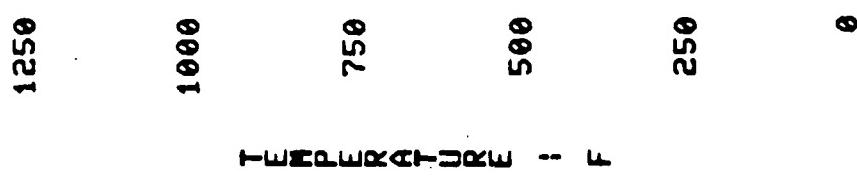
STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

U077T9925A



STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.70) Z=440

U07T9925A



TEMPERATURE -- F

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

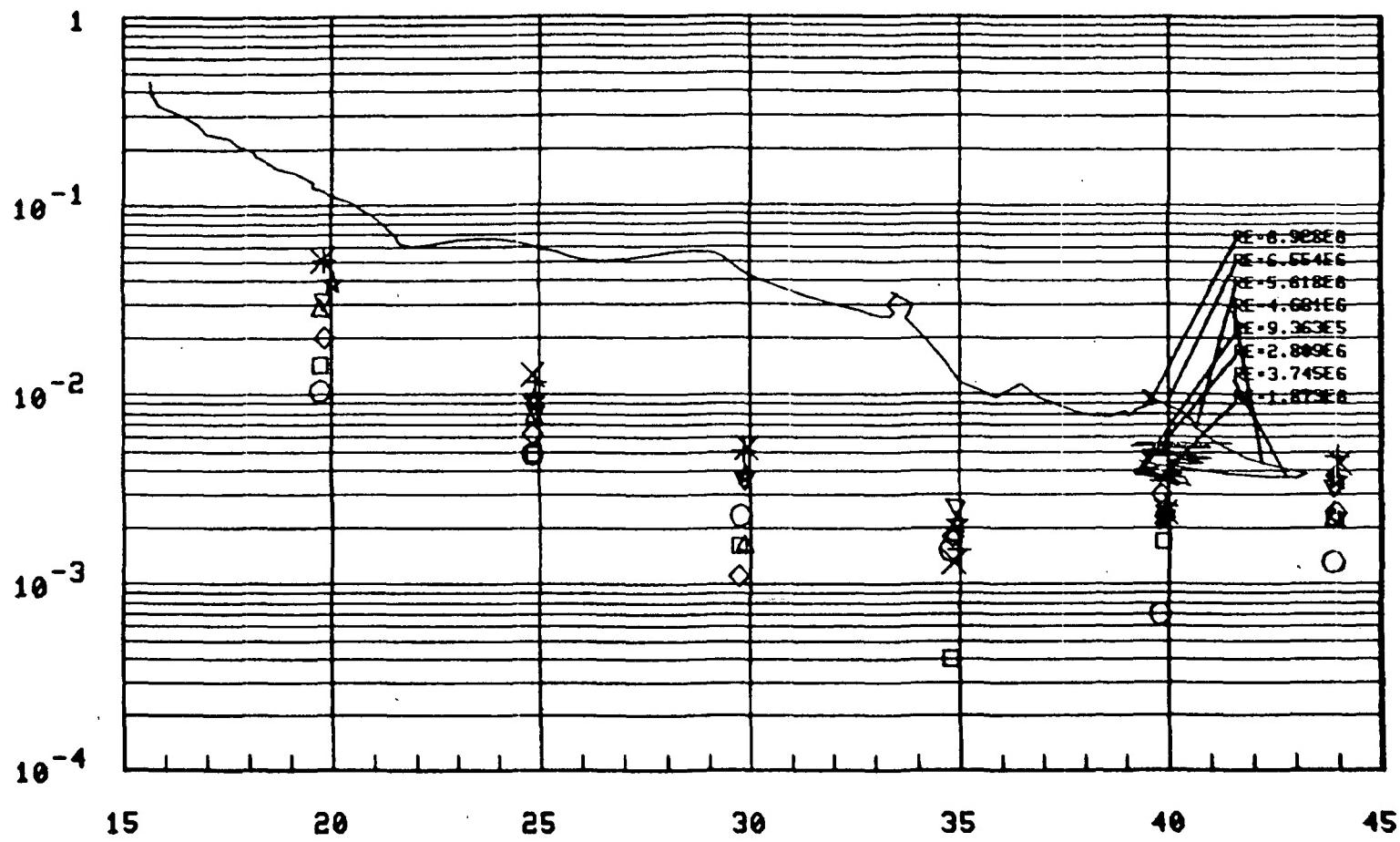
O □ △ ▽ ▵ + X

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9926A/H-REF 200-1440 SEC

FILM COEFF - H/H_{REF}

B-496



ANGLE-OF-ATTACK - DEG

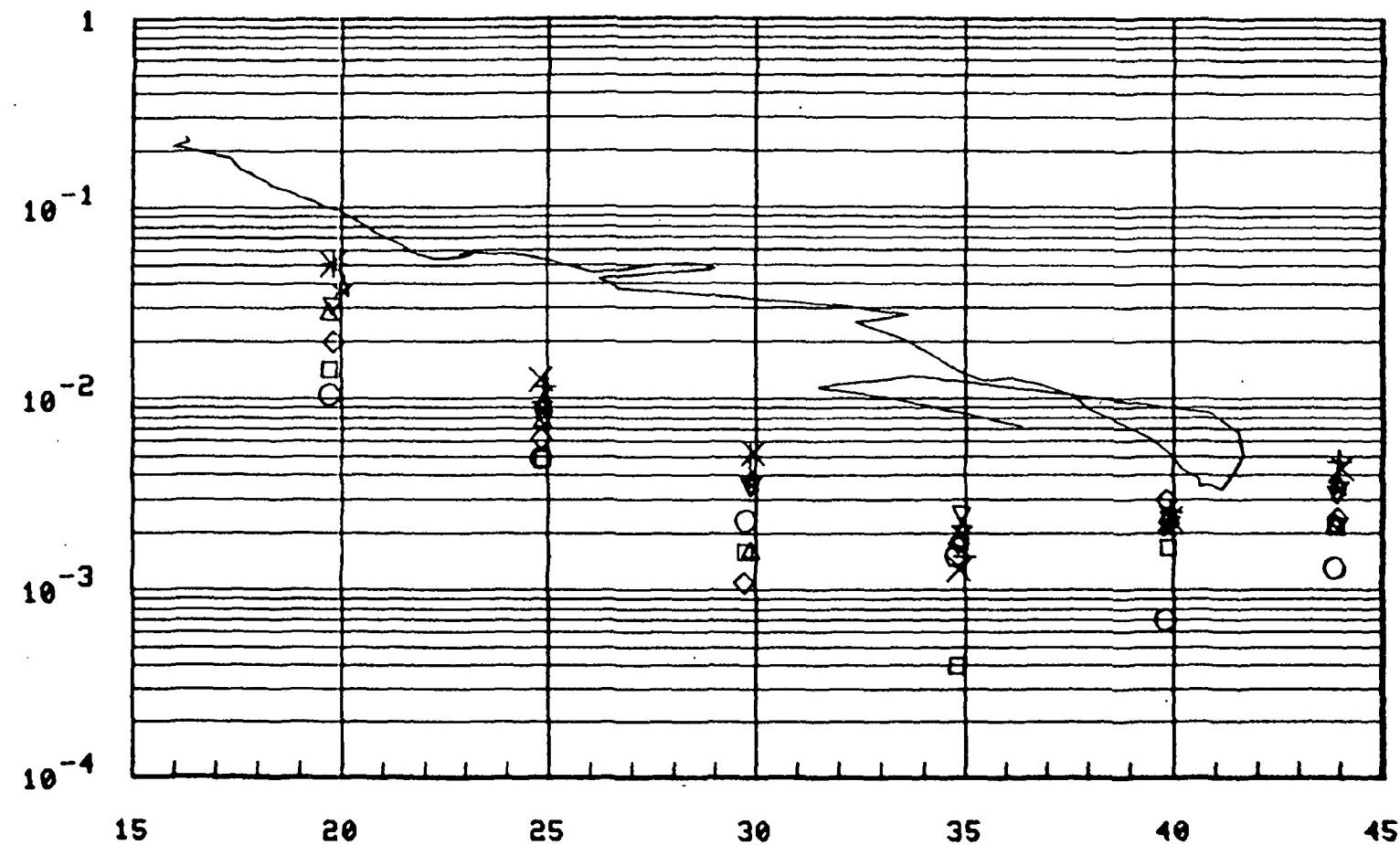
01/11/84
 BASE TIME = 07745684.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9926A/H-REF 965-1360 SEC

○□◇△★+X



B-497

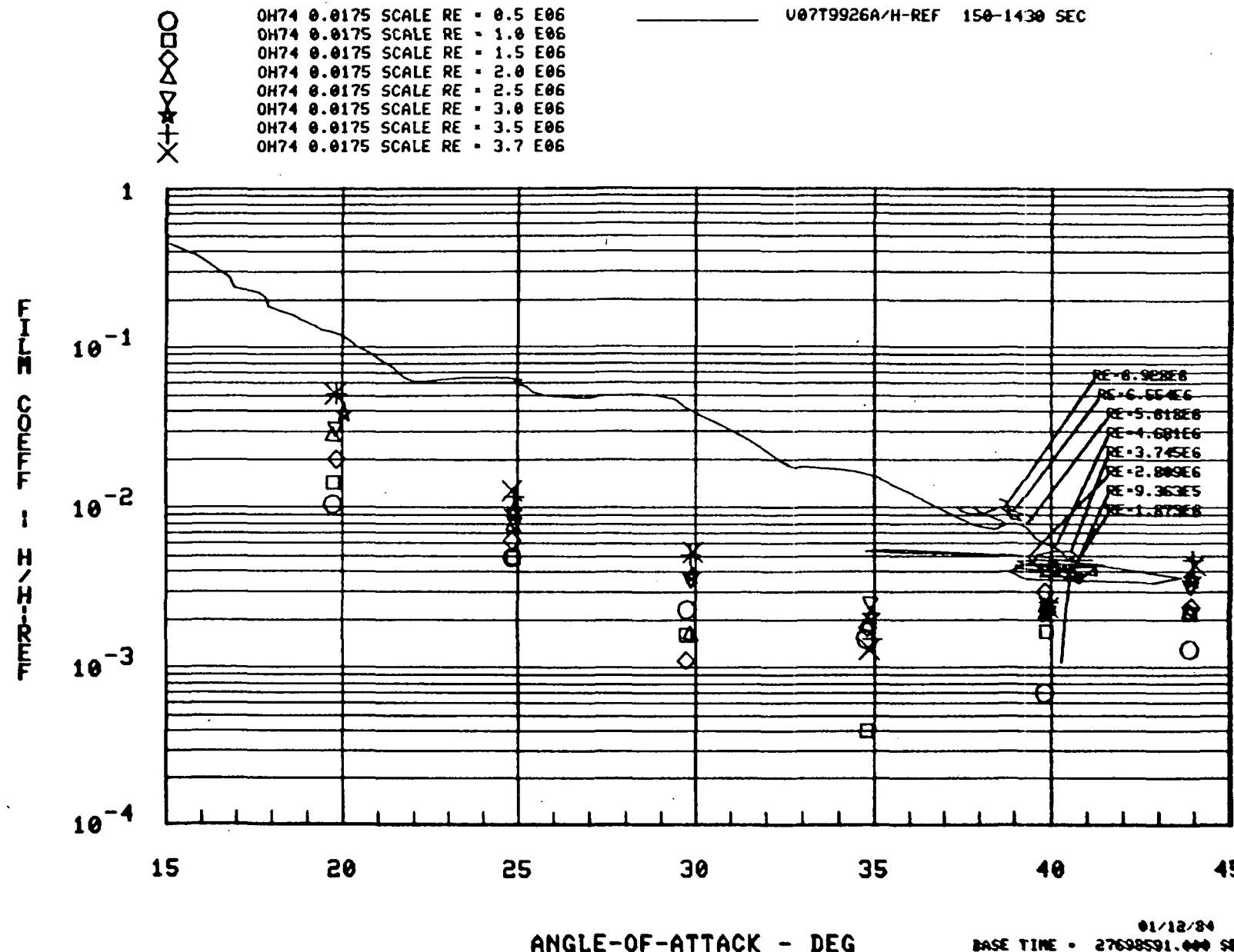
ANGLE-OF-ATTACK - DEG

01/12/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

OH74 0.0175 SCALE RE = 0.5 E06
 OH74 0.0175 SCALE RE = 1.0 E06
 OH74 0.0175 SCALE RE = 1.5 E06
 OH74 0.0175 SCALE RE = 2.0 E06
 OH74 0.0175 SCALE RE = 2.5 E06
 OH74 0.0175 SCALE RE = 3.0 E06
 OH74 0.0175 SCALE RE = 3.5 E06
 OH74 0.0175 SCALE RE = 3.7 E06

U07T9926A/H-REF 150-1430 SEC

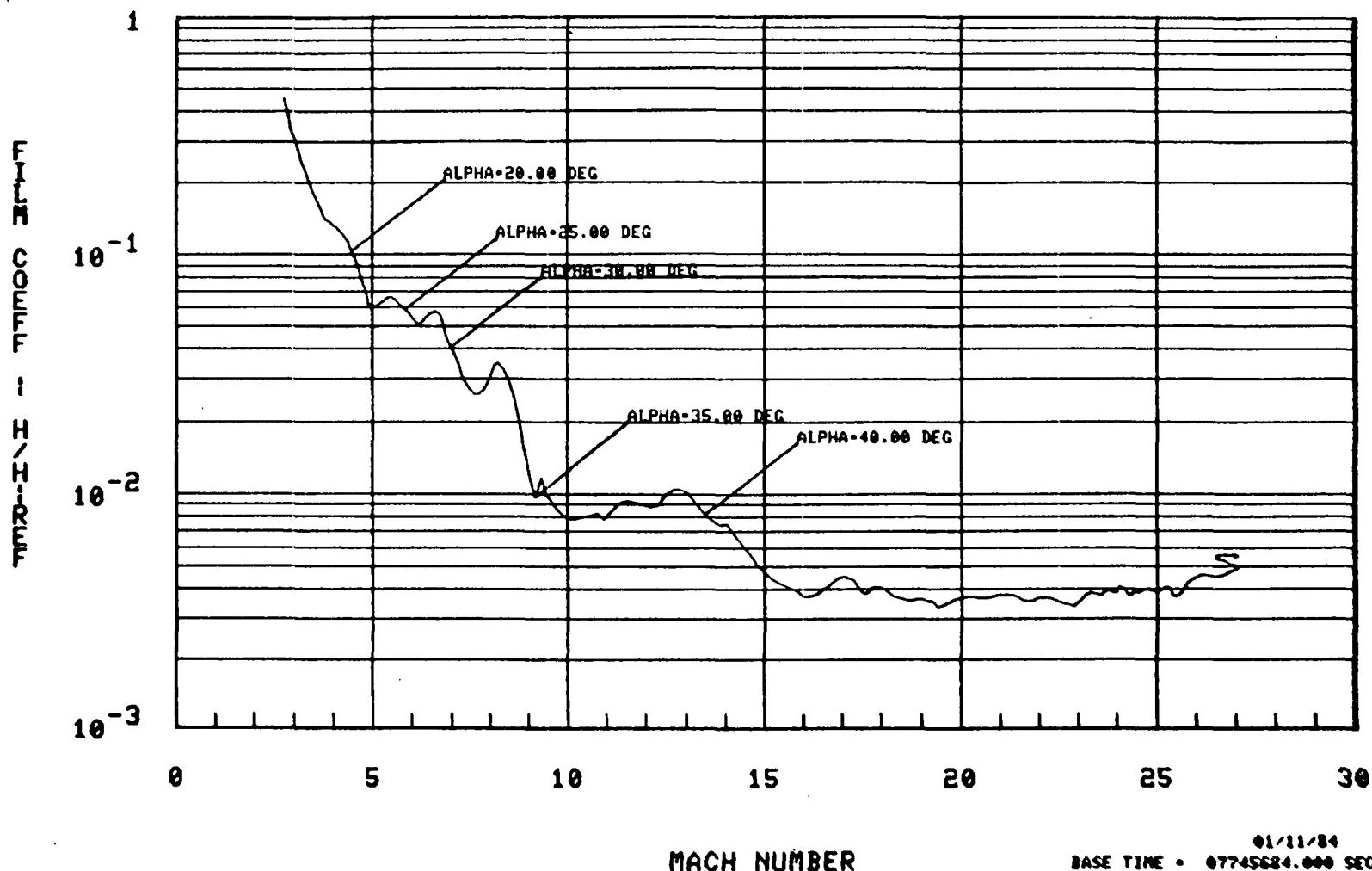


B-498

01/12/84
BASE TIME = 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

U07T9926A/H-REF 200-1440 SEC



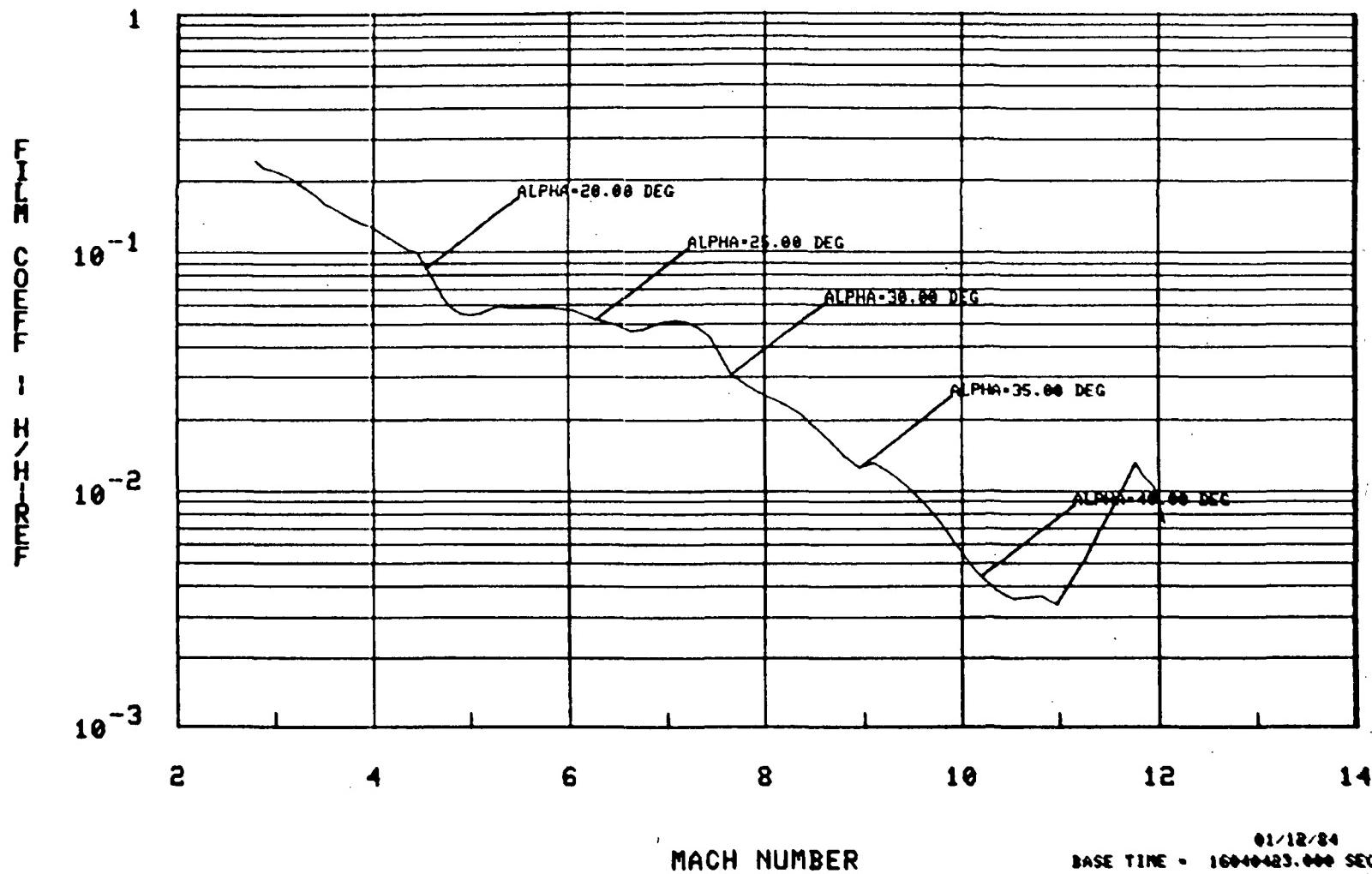
MACH NUMBER

01/11/84
BASE TIME • 07745624.000 SEC.

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

U07T9926A/H-REF 965-1360 SEC

B-500



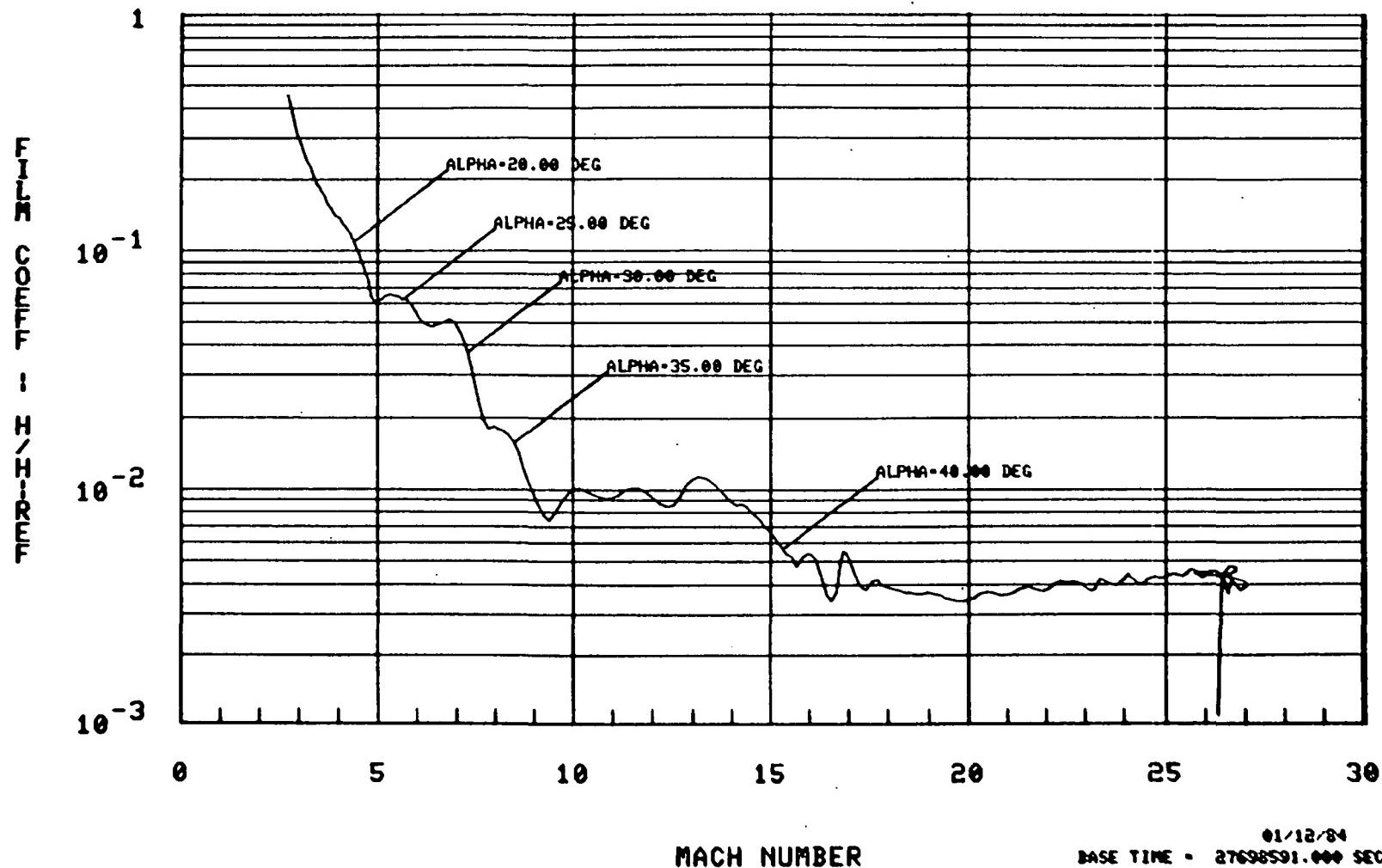
MACH NUMBER

01/12/84
BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

U07T9926A/H-REF 150-1430 SEC

B-501



MACH NUMBER

01/12/84

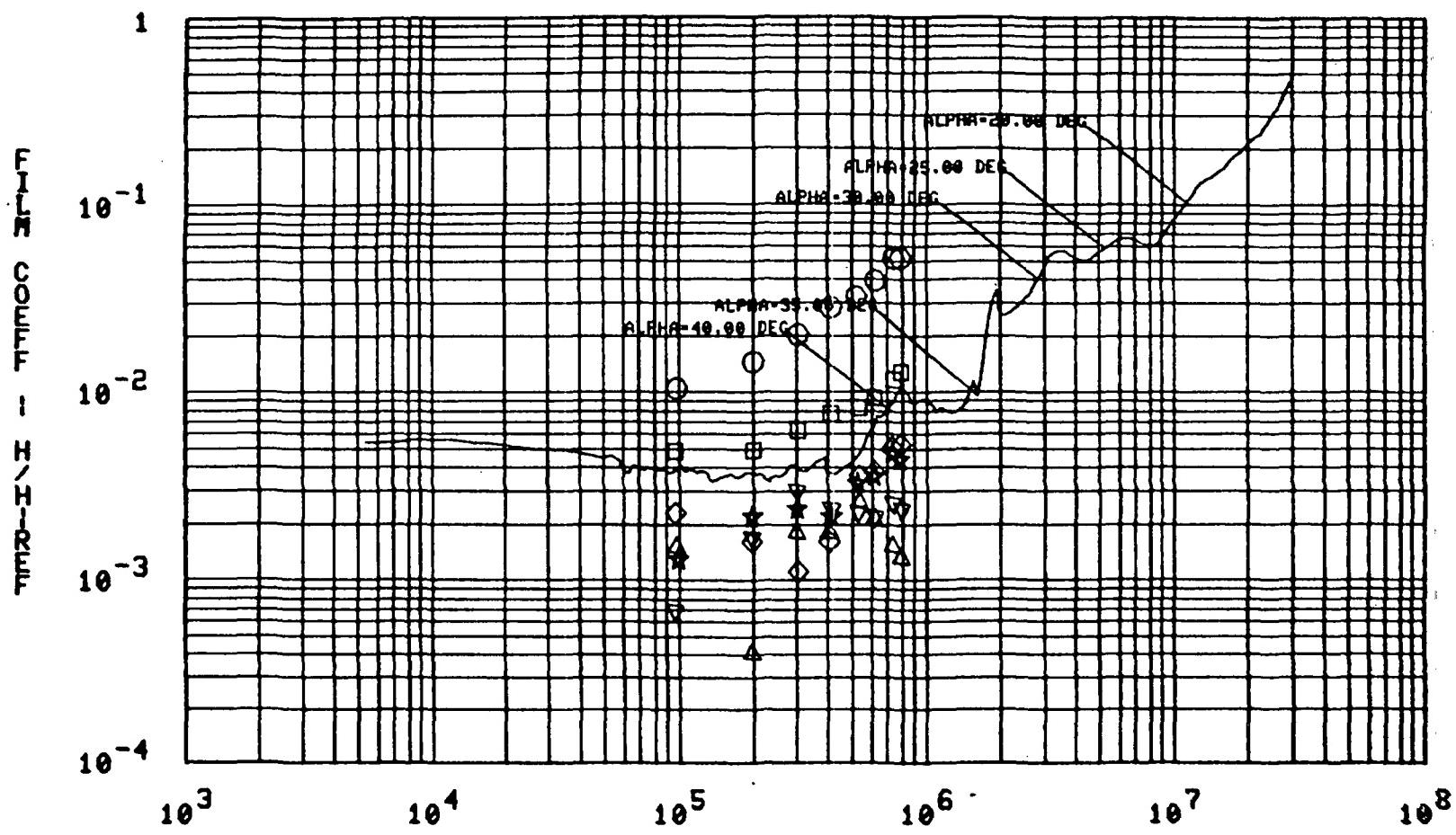
BASE TIME = 27698591.000 SEC.

STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

○ □ ◇ △ ▽ ★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9926A/H-REF 200-1440 SEC



B-502

REYNOLDS NUMBER (NS)

01/11/84
 BASE TIME = 07745684.000 SEC.

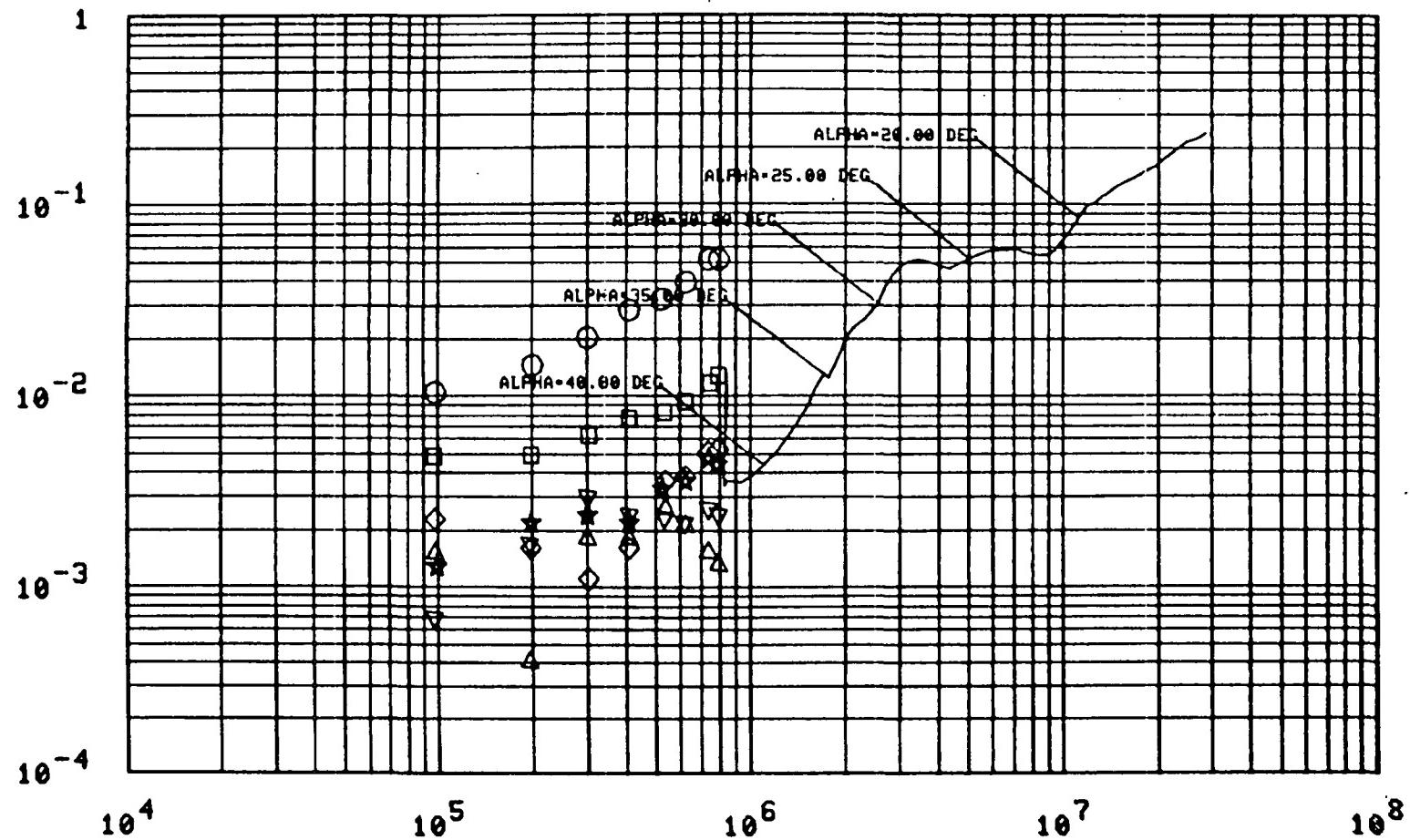
STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

○□◇△★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9926A/H-REF 965-1360 SEC

LINE SOURCE - H-E-REFL



B-503

REYNOLDS NUMBER (NS)

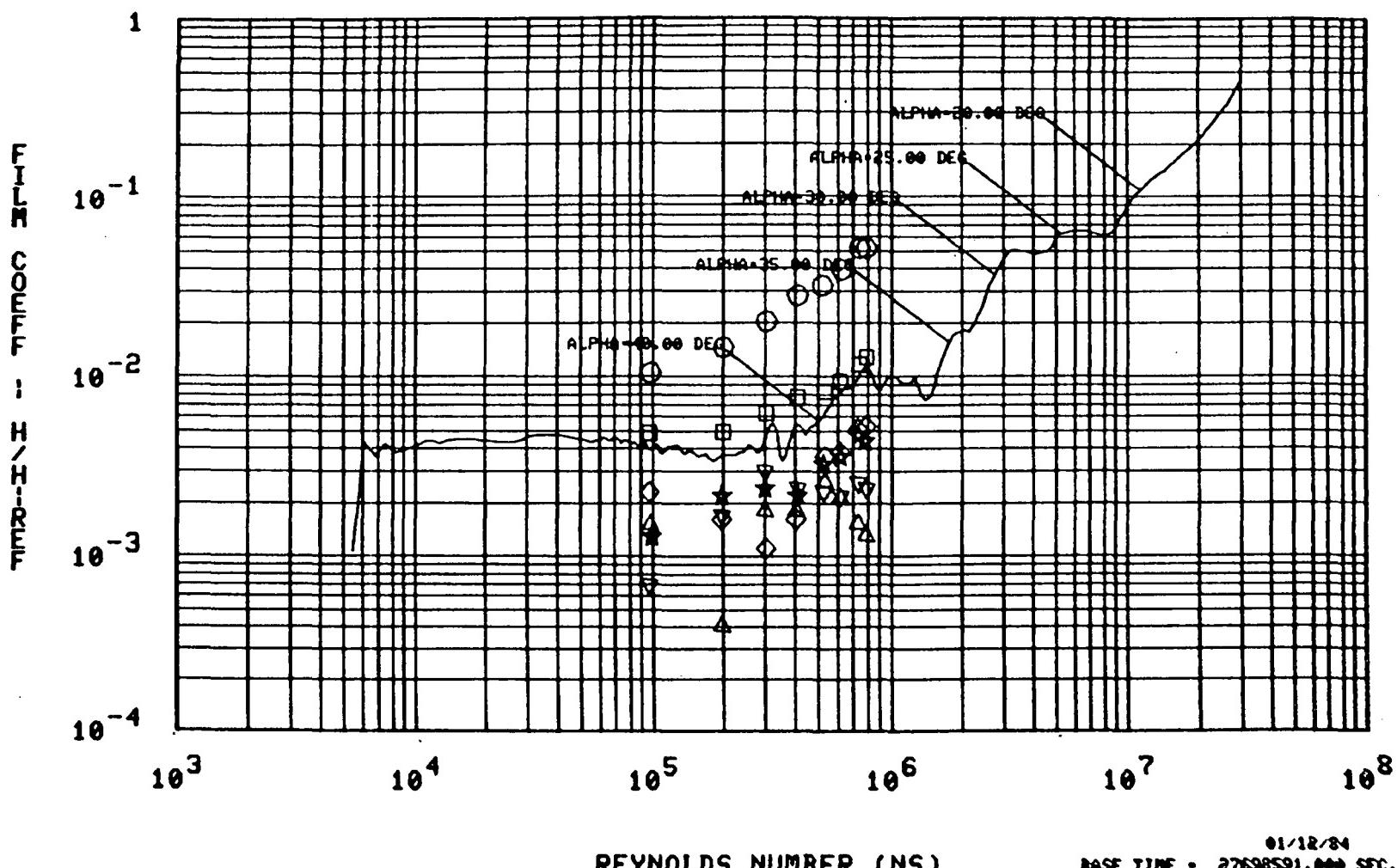
01/12/84
 BASE TIME = 16040423.000 SEC.

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

○□◇◆▼★

OH74 ALPHA = 20 DEGREES
 OH74 ALPHA = 25 DEGREES
 OH74 ALPHA = 30 DEGREES
 OH74 ALPHA = 35 DEGREES
 OH74 ALPHA = 40 DEGREES
 OH74 ALPHA = 44 DEGREES

U07T9926A/H-REF 150-1430 SEC



B-504

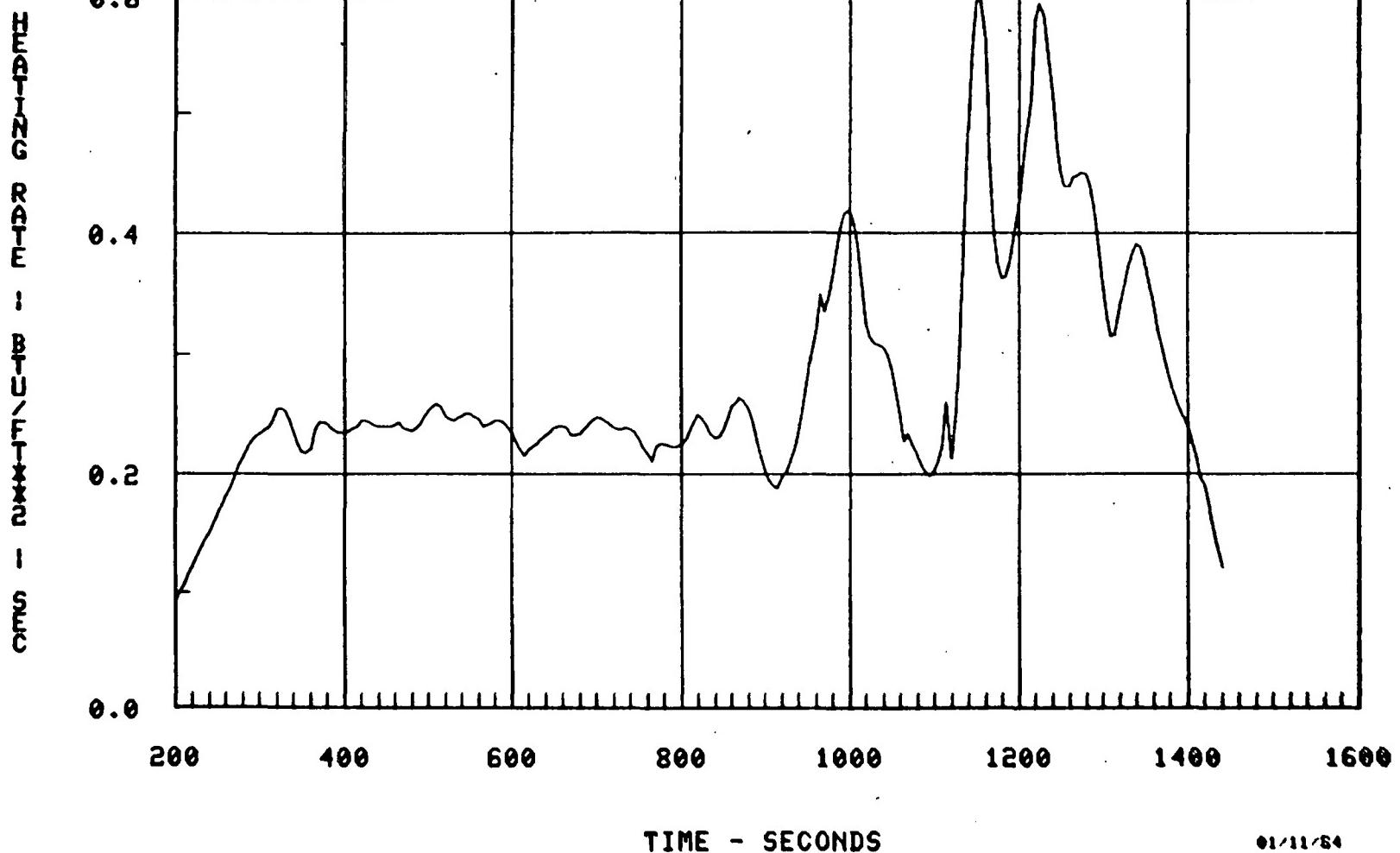
REYNOLDS NUMBER (NS)

01/12/84

BASE TIME = 27698591.000 SEC.

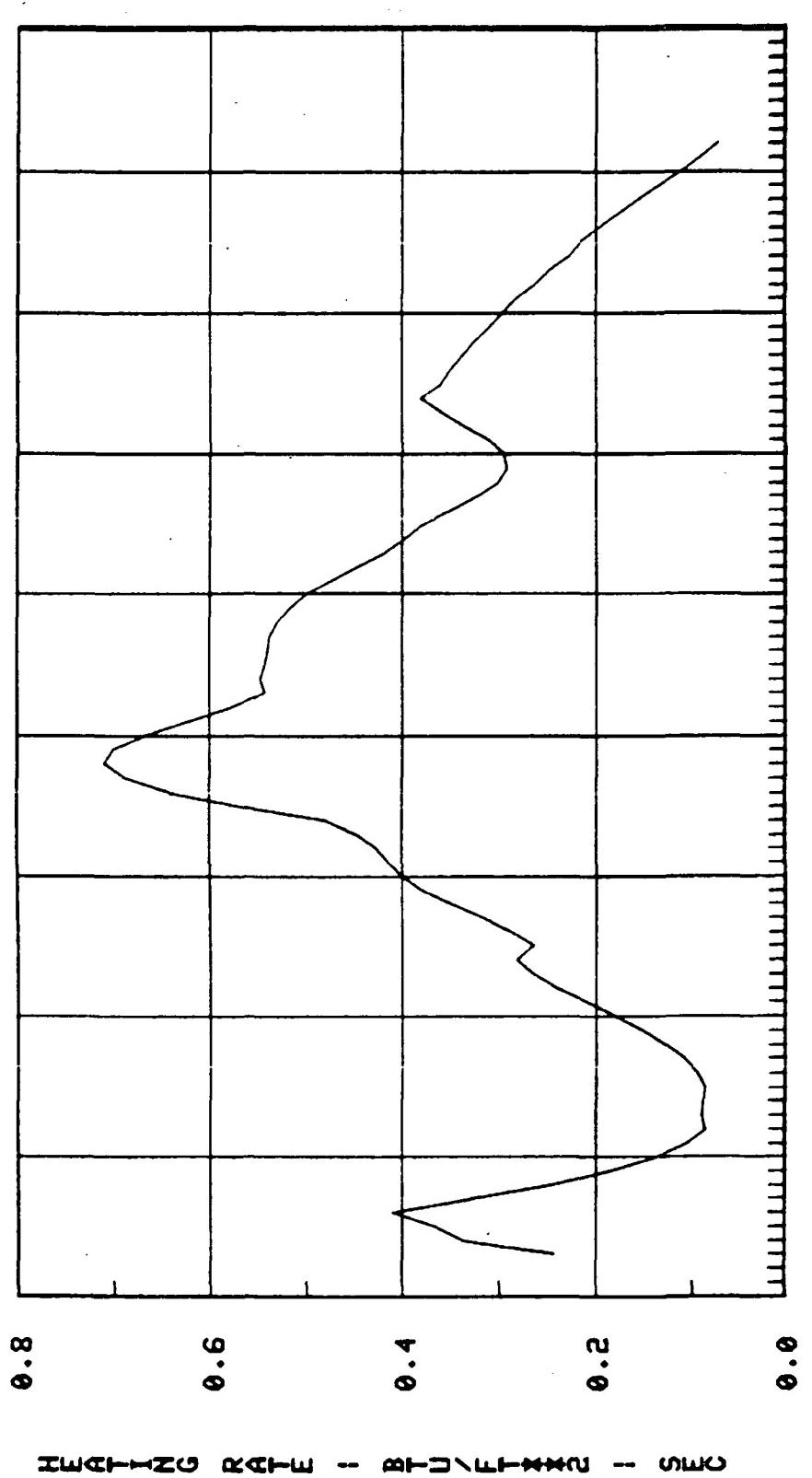
STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

U07T9926A



STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

U0779926A

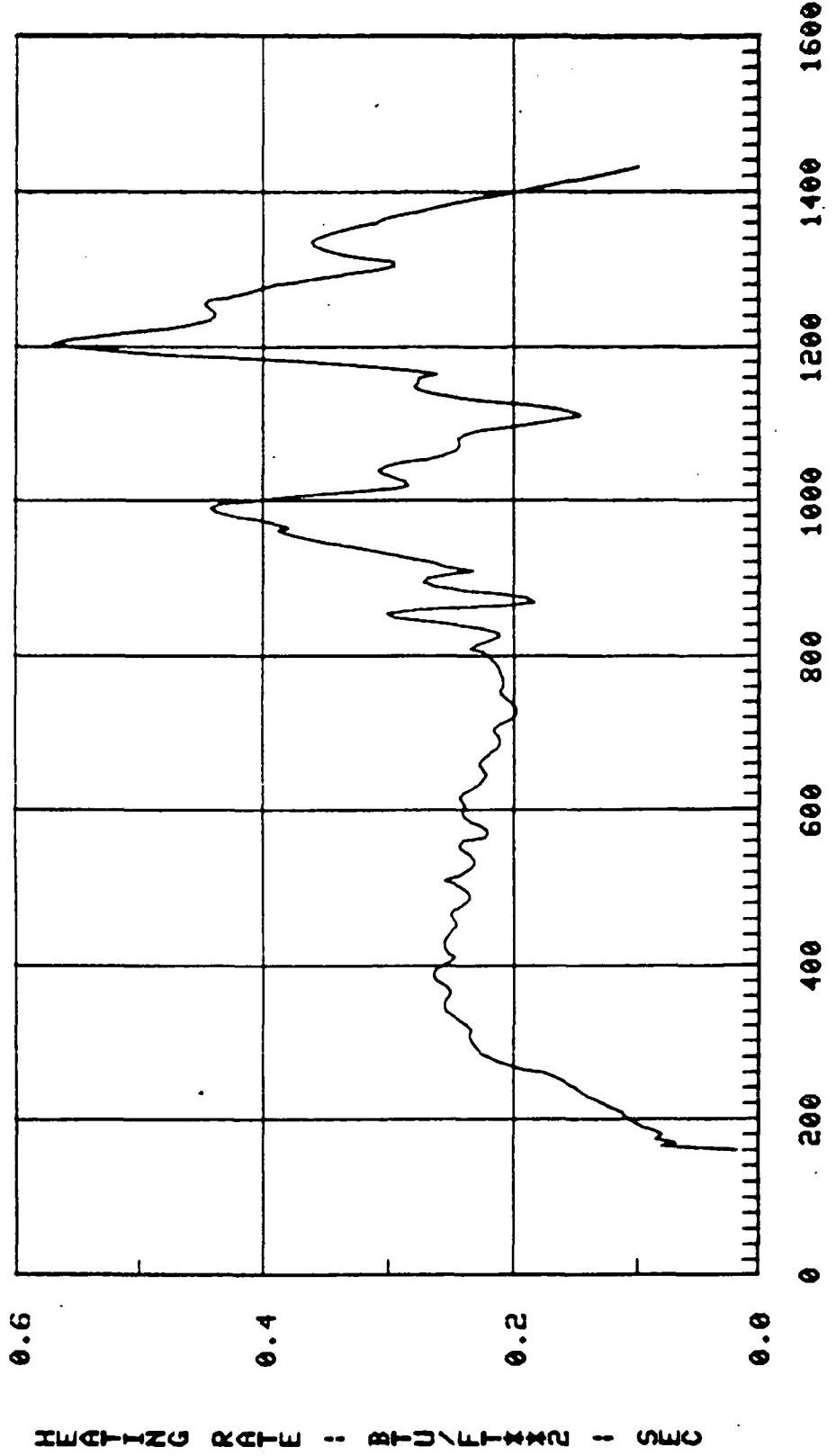


01/18/84

TIME - SECONDS

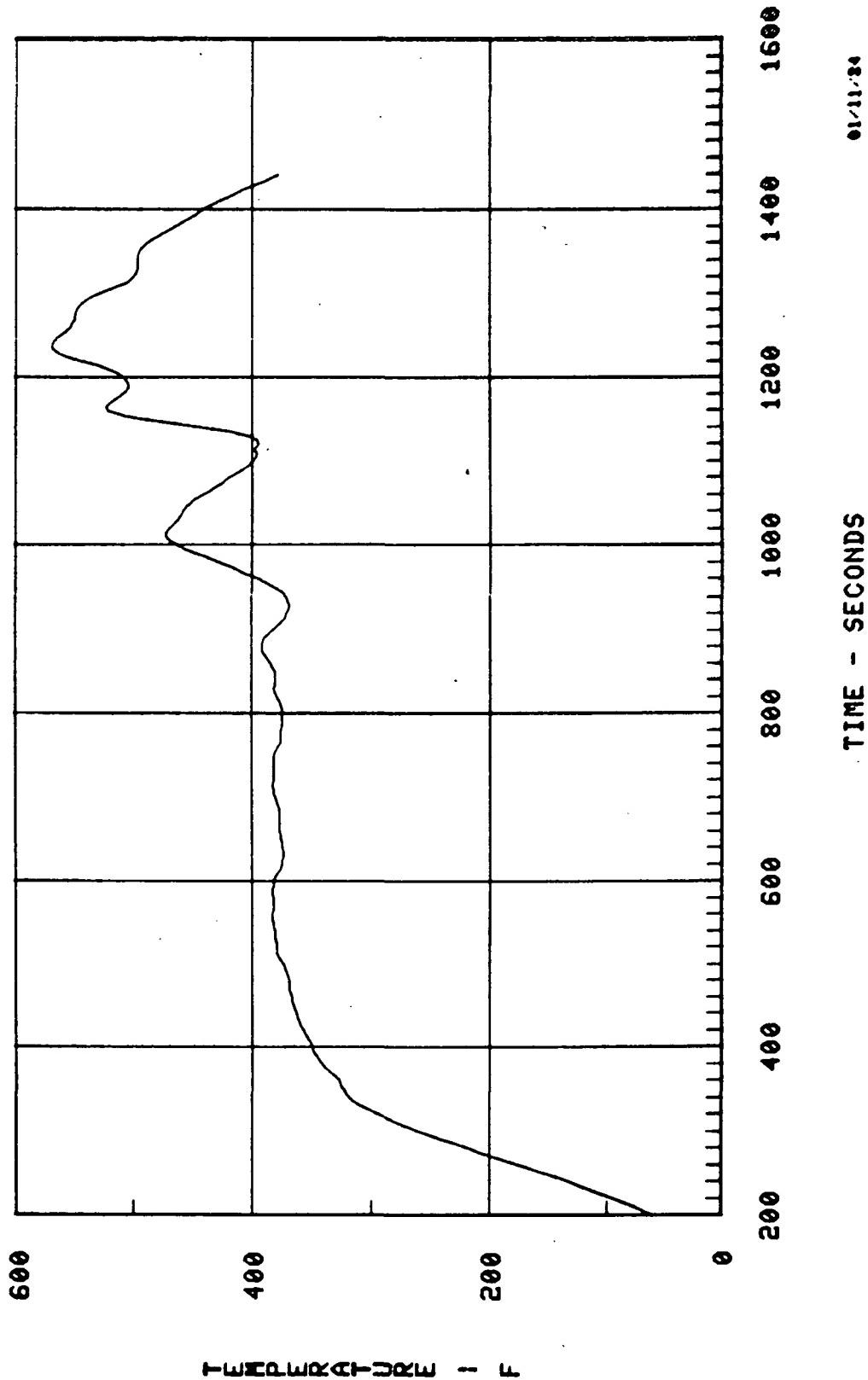
STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

U077T9926A



STS-3 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

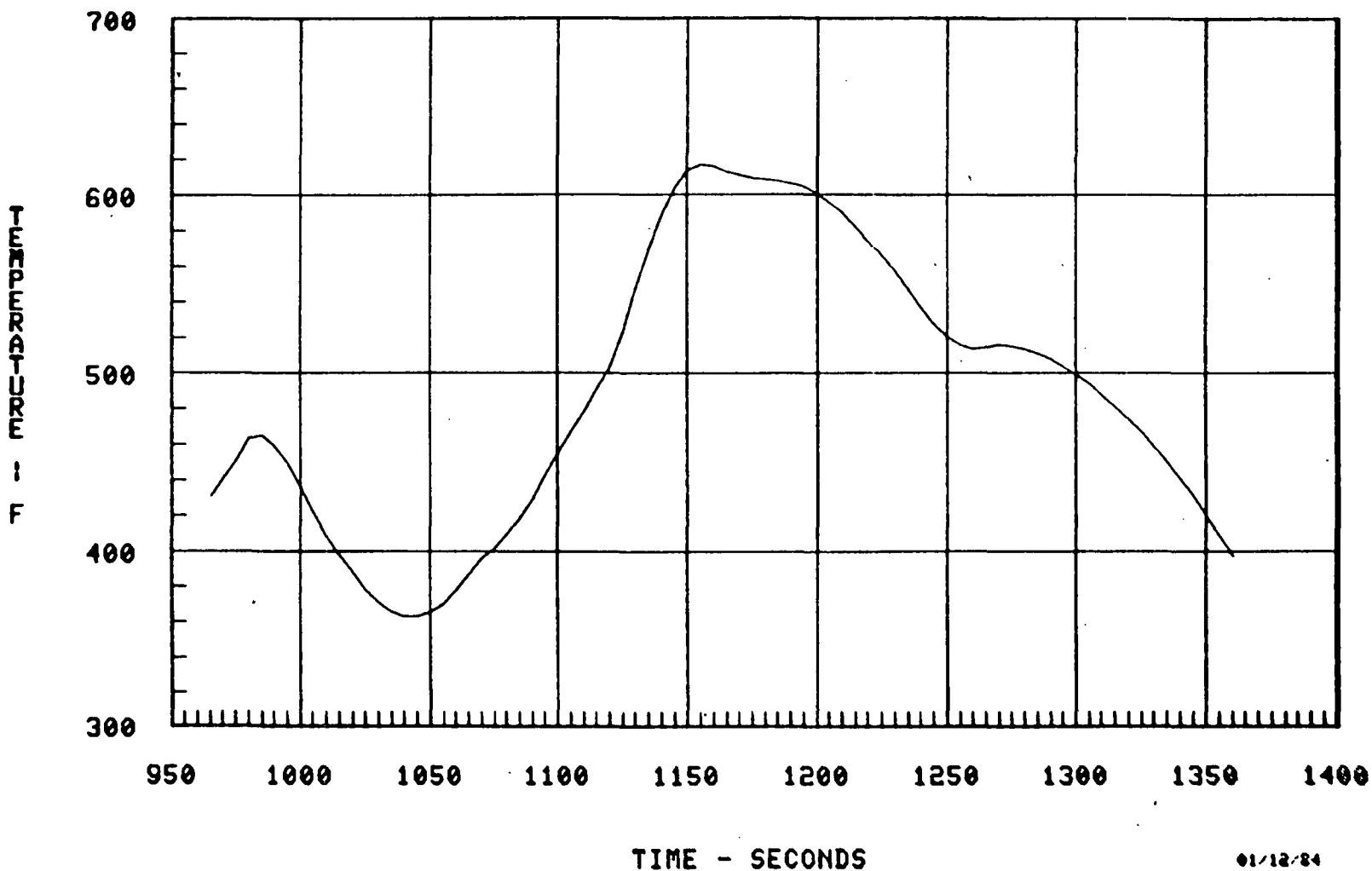
00779926A



TEMPERATURE - F

STS-4 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

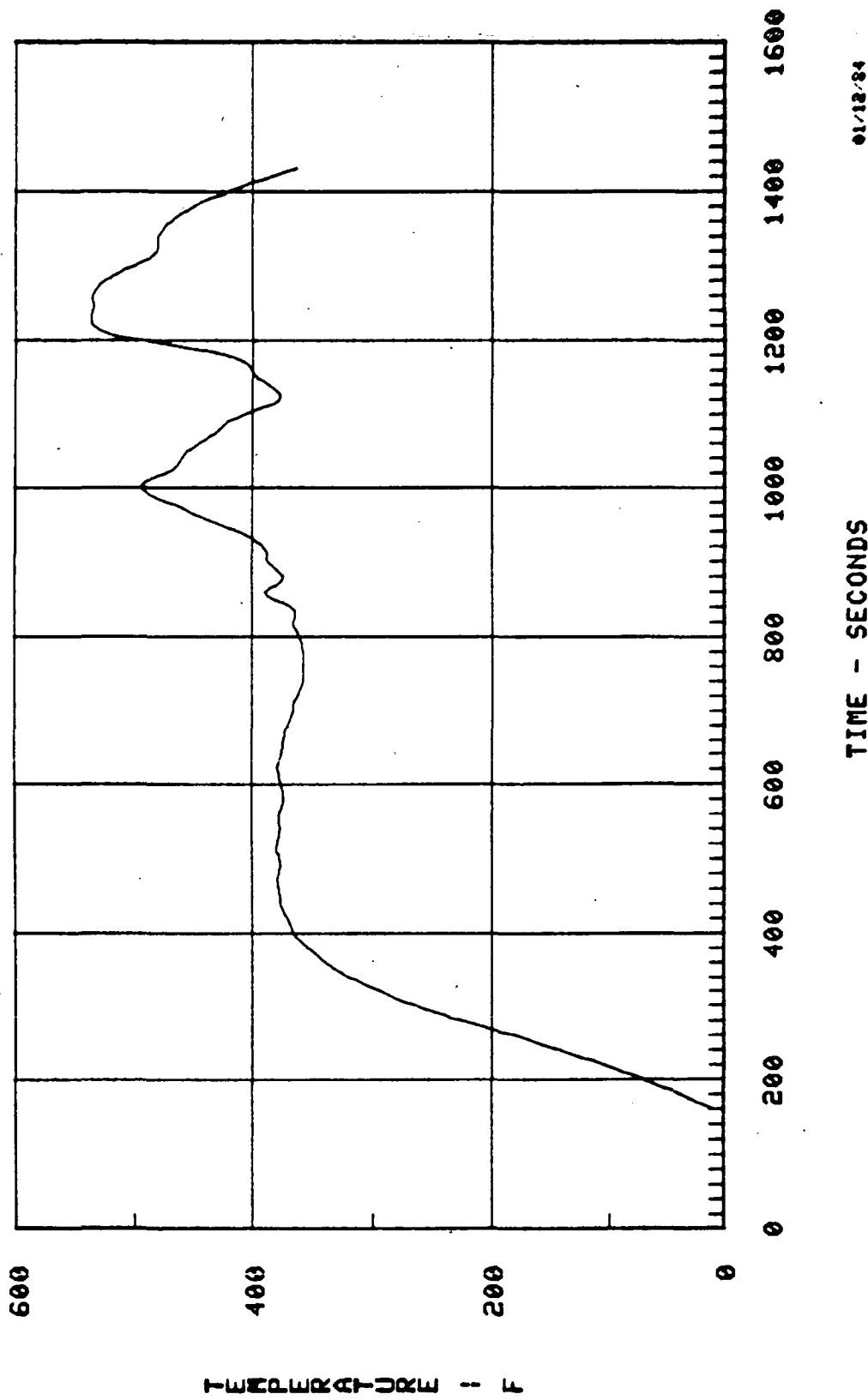
U07T9926A



01/12/84

STS-5 (107 FT LENGTH SIDE PLB DOOR X/L=0.80) Z=440

U0779926A



TEMPERATURE -- F

B-510

01/12/84

1. Report No. NASA-CR-	2. Government Accession No.	3. Recipient's Catalog No.	
Title and Subtitle COLUMBIA: THE FIRST FIVE FLIGHTS ENTRY HEATING DATA SERIES VOLUME 5 The Side Fuselage and Payload Bay Door		5. Report Date January 1984	
7. Author(s) S. D. Williams		6. Performing Organization Code 24-50	
9. Performing Organization Name and Address Lockheed Engineering & Management Services Co., Inc. 1830 NASA Road 1 Houston, Texas 77058		8. Performing Organization Report No. LEMS CO-19346	
12. Sponsoring Agency Name and Address NASA Johnson Space Center Structures and Thermal Division Houston, Texas		10. Work Unit No. J.O. 52-309	
		11. Contract or Grant No. NASA 9-15800	
		13. Type of Report and Period Covered Contractor Report	
15. Supplementary Notes		14. Sponsoring Agency Code	
16. Abstract Entry heating flight data and wind tunnel data on the side fuselage and payload bay door, Z = 400 and 440 trace aft of X/L=0.2, are presented for the first five flights of the Space Shuttle Orbiter. The heating rate data is presented in terms of normalized film heat transfer coefficients as a function of angle-of-attack, Mach number, and Normal Shock Reynolds number. The surface heating rates and temperatures were obtained via the JSC NONLIN/INVERSE computer program. Time history plots of the surface heating rates and temperatures are also presented.			
17. Key Words (Suggested by Author(s)) Heating rate Film heat transfer coefficient Mach number Reynolds number Wind tunnel		18. Distribution Statement Subject category: Side Fuselage and Payload Bay Door Entry Heating	
Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 523	22. Price*

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